February 1957

RAILWAY TRACK and STRUCTURES

A Simmons-Boardman Publication

It's a green light!

-ON RAIL ENDS, RAIL JOINTS, FROGS AND SWITCHES

with— NATIONAL RAILWAY SPRING WASHERS

-on the job!

IMPROVED HIPOWERS IMPROVE TRACK

Powerful NATIONAL Spring Washers have demonstrated their ability to reduce maintenance costs. The reserve power, designed into these service-proven spring washers, absorbs shocks and assures constant bolt tension.

A COMPLETE LINE OF RAILWAY SPRING WASHERS

The NATIONAL LOCK WASHER COMPANY

Serving Industry Since 1886 — NEWARK 5, NEW JERSEY, U.S.A.

On the Nashville, Chattanooga & St. Louis

As the "Dixie Flyer" whizzes past, two D6s build a dike and open up a channel near Murfreesboro, Tenn.

CAT* D6 TRACTORS INCREASE PRODUCTION

Today these Caterpillar D6 Tractors are building a dike and opening up a creek channel. Yesterday, they were finishing a 170,000 cu. yd. fill. Before that they were on a four-mile banking job and a three-mile ditching job. The Nashville, Chattanooga & St. Louis Railway never runs out of jobs for these rugged off-track units during the working season.

Now the production and high-availability record of the Cat D6 Tractor is greater than ever with the new Caterpillar field-tested oil clutch. This is important for construction jobs that are tough on tractor flywheel clutches. You'll find the new clutch increases availability and reduces service and maintenance costs. Clutch adjustments are rarely required and disc replacements are needed no more frequently than engine overhauls.

And production will climb, too. Because today the D6 delivers 75 HP at the drawbar. That's *productive* power because of the unit's sure-footed traction in any kind of footing.

Behind all Caterpillar-built equipment stands an army of dealers. They stock your parts so you do not have to tie up capital in a large parts inventory. And they are ready with complete service facilities to give you quick, efficient service any time . . . anywhere.

See the great, new Cat-built equipment that can be used in practically all your off-track work. Your Caterpillar Dealer will demonstrate this high-production equipment on *your* job . . . at *your* convenience.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

WANTED—
THE HARD WORK

This guard *can't* lie down on the job

It's a guard rail's job always to stand fast while a train rolls through the flangeway. And Bethlehem's Hook Flange Guard Rail is the most steadfast sentry of them all. That's because its specially rolled flange "hooks" under the running rail, where it is clamped tight by the weight of a passing train. This guard rail just *can't* lie down on the job!

The Hook Flange Guard Rail is as easy to install as a guard rail could be. No holes to drill, no blocks or clamps to fit in place. Just a sturdy, one-piece rail (ranging in length from 6 ft to 16 ft 6 in.), beveled at the ends, and bolted through pre-drilled holes to the special tie-plates furnished with the guard.

The tie-plates are double-shouldered to engage the bases of both running rail and guard. Thick side braces are heavily welded in position to provide additional reinforcement where it is needed most: opposite the point of the frog.

No wonder the Hook Flange Guard Rail is such a dependable performer! We have never heard of one failing under traffic. That is the kind of service you have every right to expect from the guard rails on your lines. If you'd like to know more about the Hook Flange Guard Rail, a Bethlehem representative will be glad to arrange a mutually convenient time and location.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
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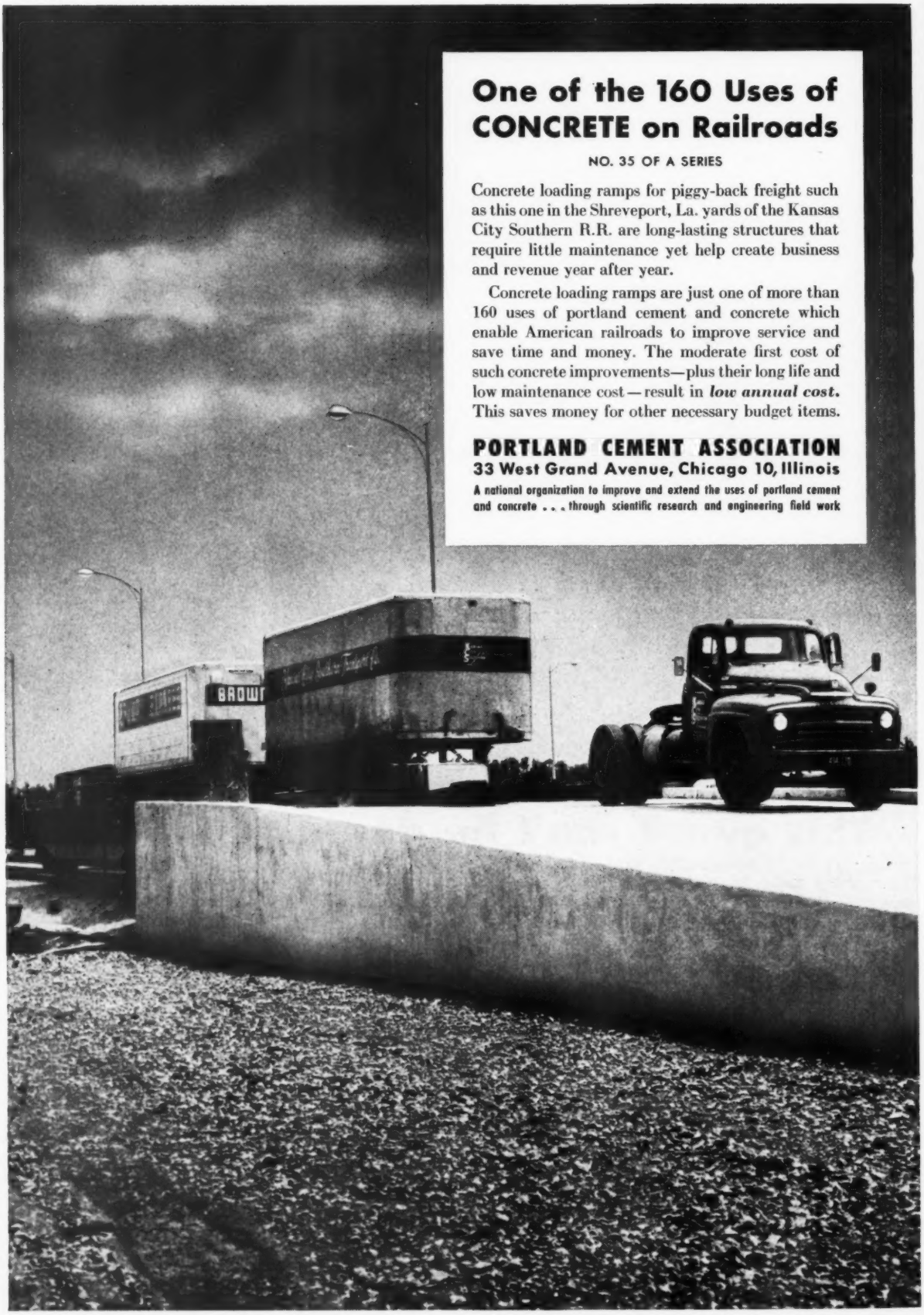
Published monthly by Simmons-Boardman Publishing Corporation, Emmett Street, Bristol, Connecticut, with editorial and executive offices at 79 West Monroe Street, Chicago 3, Illinois; 30 Church Street, New York 7, New York. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year $2.00. Second class mail privileges authorized at Bristol, Conn. Volume 53, No. 2.


One of the 160 Uses of
CONCRETE on Railroads
NO. 35 OF A SERIES
Concrete loading ramps for piggy-back freight such as this one in the Shreveport, La. yards of the Kansas City Southern R.R. are long-lasting structures that require little maintenance yet help create business and revenue year after year.
Concrete loading ramps are just one of more than 160 uses of portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such concrete improvements—plus their long life and low maintenance cost—result in low annual cost. This saves money for other necessary budget items.
PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

Once Over Lightly

WITH

Nalco H-174

for a Full Season's

WEED CONTROL

ONCE over lightly in your yards with Nalco H-174 gives you a full season of effective weed and brush control. High activity and sustained, non-selective killing power eliminate emergent growth, prevent regrowth by staying in the soil for months after application.

No mixing or dilution of Nalco H-174 is necessary. New granular, free-flowing form can be used as it comes from the convenient shaker box, or in Nalco hand or wheeled spreaders.

For yard application where cars cannot be conveniently moved, the Nalco wheeled spreader is ideal. Spreads Nalco H-174 at adjustable dosage rates, and up to sixteen feet total width. Low distributor head spreads H-174 evenly, economically over area being treated.

Full information on Nalco H-174 and Nalco Spreaders will be furnished promptly upon request.

NATIONAL ALUMINATE CORPORATION

6196 West 66th Place • Chicago 38, Illinois

In Canada: Alchem Limited, Burlington, Ontario

A *Nalco*® **PRODUCT . . . Serving Railroads through Practical Applied Science**

In your '57 planning ...be sure to consider these 5 NEW NORDBERG "Mechanical Muscles"®

From the time the first Nordberg Track Maintenance Machine was introduced over a quarter-century ago to the present day . . . America's leading railroads have made Nordberg "*Mechanical Muscles*" the standard by which modern maintenance machinery is compared.

As with all of the more than twenty-five Nordberg "*Mechanical Muscles*," these five new track machines have been designed, built, tested and proved with the cooperation of railroad men. This is further evidence of progress and constant assurance that Nordberg will continue to serve you better with an ever increasing line of dependable maintenance machines.

1. **The NEW NORDBERG BRONCO** . . . A propulsion unit for the Dun-Rite® Gaging Machine and Pregager. Single, power driven crawler tread runs on the top of ties. Reduces men required in Dun-Rite Gaging operation from five to three.

2. **The NEW NORDBERG SURFRAIL GRINDER** . . . Latest addition to the well-known Nordberg Rail Grinder line is a one-man, lightweight machine for such jobs as removing mill tolerance, leveling cropped rail and surface grinding rail ends or wheel burns which have been welded.

3. **The NEW NORDBERG SELF-PROPELLED ADZER** . . . Self-propulsion is now available for the Nordberg Adzer, making it a truly one-man machine. Self-propulsion increases production of ties adzed per cutter head, increases operator safety, and produces more accurate adzing.

4. **The NEW NORDBERG BANTAM RAIL SLOTTER** . . . Rails requiring cross grinding can be quickly slotted to prevent chipping by the new Bantam Rail Slotter. This compact, completely portable one-man machine uses 8" diameter grinding wheels of varying thicknesses.

5. **The NEW NORDBERG TAMPING POWER JACK** . . . Combines features of the Nordberg Power Jack and Gang Tamper. For use ahead of gang tamping equipment, the self-propelled Tamping Power Jack raises track quickly, and solidly tamps ties to hold raise.

MAIL THE COUPON FOR FURTHER DETAILS

NORDBERG MFG. CO., Milwaukee, Wisconsin

NORDBERG

Serving the Nation's Railroads for over 25 years.

Nordberg Mfg. Co., Milwaukee, Wis.

Send further details on: ☐ BRONCO

☐ SURFRAIL GRINDER ☐ SELF-PROPELLED ADZER

☐ BANTAM RAIL SLOTTER ☐ TAMPING POWER JACK

Name_____ Position_____

Railroad_____

Address_____

City_____ Zone_____ State_____

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One of the first ALL STEEL STRUCTURES...

Above left, oxygen cut being made in deck of old bridge. Directly above, old bridge is dwarfed by new lift span.

Goes the fast, efficient way of oxygen cutting

Sixty-three years old, and one of the first all steel structures built in the United States, the steam operated swing span, shown at left above, has carried up to 140,000 passengers a day in and out of New York's busy Manhattan Island. After suffering the mechanical ills of old age, this New York Central Railroad bridge was skillfully removed by using LINDE oxygen cutting.

The old bridge had a four track right of way with a girder structure separating tracks 1 and 3 from 2 and 4. After the tracks were taken up, the deck of the bridge was divided by a series of transverse and longitudinal cuts, and removed. Super structure beams were next to be cut off. Finally, the main side girders were cut into portable lengths and lowered away.

Oxygen and acetylene gases were supplied to the cutting torches by centrally located LINDE cylinders manifolded together.

No matter what your fabricating, repairing, or scrapping needs may be—LINDE can help you do the best job, in the least amount of time. Call your local LINDE representative for detailed information on LINDE's processes—or write for specially prepared literature. Start saving now, do it today.

RAILROAD DEPARTMENT

Linde Air Products Company

A Division of Union Carbide and Carbon Corporation

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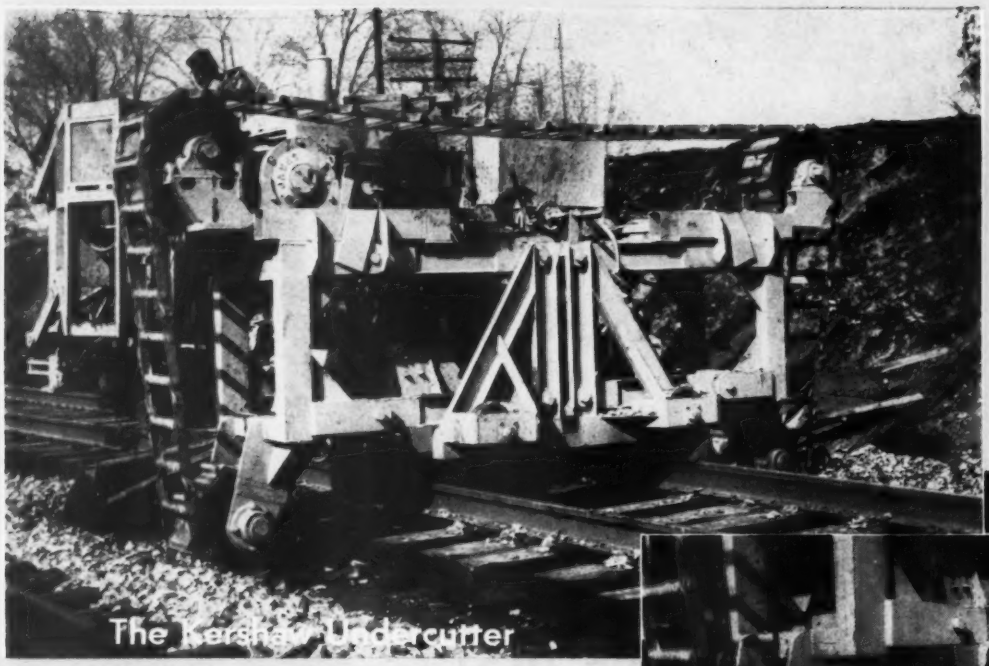
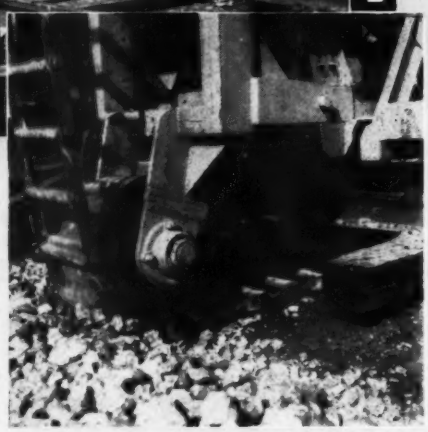
Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under this familiar symbol . . .

"Linde" and "Oxweld" are registered trade-marks of Union Carbide and Carbon Corporation.



The Kershaw Undercutter



Recondition

Without Raising Track...

Recondition

Without New Ballast...!

The Kershaw Two-Wheel Kribber

The Kershaw Jack-All

The Complete Line of Kershaw Track Maintenance Equipment

Ballast Regulator, Scarifier and Plow and Attachments • Single Wheel-Type Kribber • Mocar Crane • Cribber-Adzer • Jack-All • Track Crane • Tie Bed Cleaner • Track Broom • Track Skeletonizer and Undercutter • Ballast Cleaner and Distributor • Spot Tamper • Two-Wheel Kribber • Chemical Spreader Car • Deadhead Detector • Rail Re-Layer.

2

The Kershaw Ballast Cleaner

Kershaw Jack-All first raises track, catching off the tie-ends. The Kershaw Two-Wheel Kribber, each with two digging wheels, then scarifies and removes the ballast from the tie cribs four inches below the bottom of the tie between the rails, and on the outside of the rails.

The Kershaw Undercutter and Skeletonizer follows by undercutting the track three to four inches. A continuous chain extends under the track, removes the ballast and piles it in rows on the shoulder.

Next comes the Kershaw Ballast Cleaner which picks up the old ballast, cleans it, disposes of dirt on shoulder, and puts the cleaned ballast back in the track.

Track is now ready for raising to original elevation and for final tamping on cleaned ballast. Track is reconditioned without new ballast and with same top of rail elevation.

For **Spot Reconditioning** *at*

BRIDGE APPROACHES
STATION GROUNDS
TUNNELS
ROAD CROSSINGS

Now... more than ever . .

Recognize This Symbol of Leadership...

KERSHAW
MANUFACTURING CO. INC
MONTGOMERY K ALABAMA

NEW YORK Central

RE-BALLASTS BRANCH TRACKS AT 1/3 SAVINGS!

New York Central's Joliette branch line before re-ballasting. Old ballast is heavy and wet.

New York Central plows-out foul ballast, renews ties, in one fast-moving operation.

After passage of Mannix Plow, roadbed is smooth and level, ready to receive fresh ballast.

The modern way of doing things is the only way for New York Central! That is why the road makes extensive use of MANNIX PLOWS to re-ballast track. The result: faster, better maintenance at one-third savings! Speed your maintenance program, too . . . send for full details of the MANNIX PLOW and Rental Plan today!

MANNIX INTERNATIONAL INC.

4020 Minnetonka Boulevard, Minneapolis 16, Minnesota

Phone: WAlnut 7-9411

Things to think about

when investing in treated wood products

Q. *How much longer than untreated woods, do treated woods last?*
A. Properly treated woods, such as woods treated by the American Creosoting Company, last four, five, even ten times as long as untreated woods. Under many conditions, wood treated by Amcreco may be considered essentially permanent.

Q. *Are all modern-day wood preservatives about equal in value?*
A. No, you can't assume that they are because none of the newly introduced preservatives have as yet been tried by the test of time. Creosote, on the other hand, which has been the number one wood preservative for over fifty years, is still number one in customer preference because of its established service record.

Q. *Are all treatment companies about the same — one's as capable as another?*
A. No, all treatment companies are not about the same. Some, such as the American Creosoting Company, which has been in the business for over fifty years, have more experience than others. Some, such as the American Creosoting Company, have had an opportunity to build up a treatment and service organization that is second to none.

The next time you are in need of wood products, specify treated wood products . . . poles, cross arms, conduit and other construction woods that have been pressure treated in creosote by the American Creosoting Company. We would appreciate the opportunity to quote on your needs.

AMCRECO
LOWRY PROCESS
CREOSOTED WOOD
Since 1904

AMERICAN CREOSOTING CORPORATION

Colonial Creosoting Company
Federal Creosoting Company
Indiana Creosoting Company

AMCRECO
LOWRY PROCESS

Gulf States Creosoting Company
Georgia Creosoting Company
Kettle River Company

GENERAL OFFICES: LOUISVILLE 2, KENTUCKY

Plan for the future –

Unretouched photograph of cross section of tie showing underplate and spike-hole area protected for 10 years by Bird Self-Sealing Tie Pad.

SLASH YOUR TIE COSTS WITH BIRD SELF-SEALING TIE PADS

Here is PROOF of the effectiveness and durability of the *seal* of the Bird Self-Sealing Tie Pad to the tie.

This Bird Self-Sealing Tie Pad was installed on a 1944 cross tie as part of a new rail laying program in 1946. The tie was removed from track in July, 1956 for exhibition purposes.

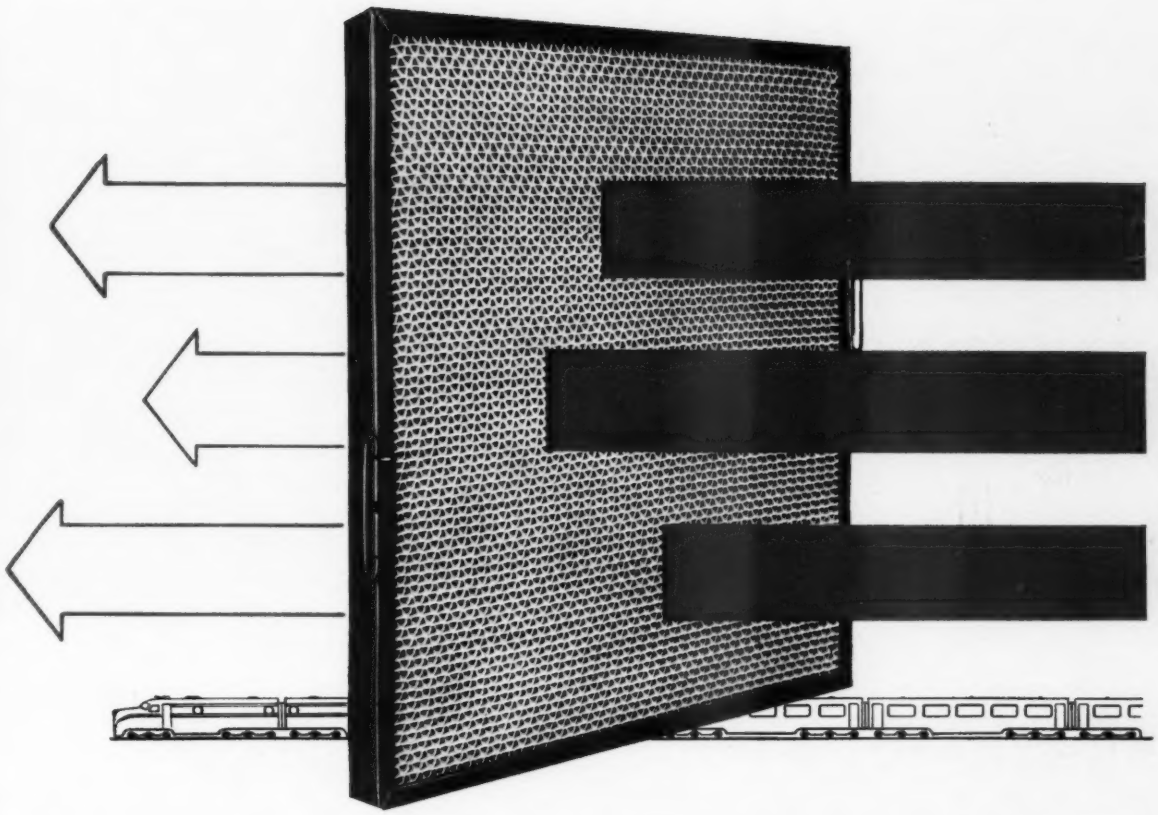
Note the protection to the underplate and spike hole wood which has been provided over a 10-year period by the Bird Self-Sealing Tie Pad. There is no trace of the well-known effects of moisture or abrasion in either of these vulnerable underplate areas. Destructive moisture and abrasive materials could not penetrate the seal.

The Bird Self-Sealing Tie Pad is specially designed to provide an effective and durable seal with the tie. The pad also protects this seal and acts as a buffer between the tie plate and the tie to eliminate mechanical wear. That's why you can slash your tie costs at least 50% through the use of Bird Self-Sealing Tie Pads. For further information, write Bird Tie Pads, Dept. HTS-2, East Walpole, Mass.

BIRD SELF-SEALING TIE PADS ARE RECOMMENDED FOR:

Bridge Decks • Curves • Switch Timbers
Highway Grade Crossings and Other Paved Areas • Crossing Frogs
Insulated Joints • With Smaller Tie Plates
Pile Cutoffs • Through Station Platforms
Out-of-Face Installations in Rail-Laying Programs • All other locations where tie life is short or replacement costs are high.

Buy the Best... BIRD & SON inc. Established 1795 *Buy BIRD*



Cut maintenance, increase engine life with Esso AIRFIL® Coating Oil

Esso's new AIRFIL Coating Oil for diesel engine air filters has such great dirt pick-up qualities that it can substantially cut maintenance costs and increase engine life. This is possible because of the reduction in abrasive wear, lessening the need for replacements of engine parts. You, too, can profit from these benefits by using Esso AIRFIL Coating Oil in diesel air intake filters, and in air-conditioning filters.

Esso AIRFIL COATING OIL offers three important advantages:

1. Easy to apply... won't drip off. In liquid form when hot, it may be applied quickly in the desired quantity, while at normal temperatures, it is a gel-like solid that won't run off.

2. Superior wicking qualities mean a continually fresh surface is presented to the air. Successive layers of dust are rapidly wetted, keeping dirt-retaining efficiency at a maximum.

3. Insoluble in water . . . won't emulsify, and so resists removal by rain or snow, yet it can be removed quickly by hot detergent wash or steam blast.

Esso offers a complete line of dependable railroad products. Valuable years of experience in research and development, combined with continual testing on the road and in the lab, stand back of the outstanding performance of Esso Railroad products.

Esso

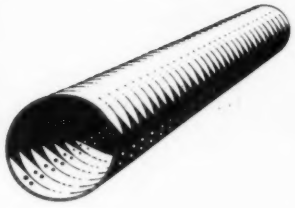
RAILROAD PRODUCTS

For data sheet regarding specifications of AIRFIL Coating Oil, write to Esso Standard Oil Company, Railroad Sales Division, 15 West 51st Street, New York 19, N. Y.

Long, lightweight sections of Armco Perforated Pipe mean quick, easy handling and fewer joints to assemble.

By Putting in Armco Perforated Pipe . . .

They're Putting An End to Costly Roadbed Maintenance



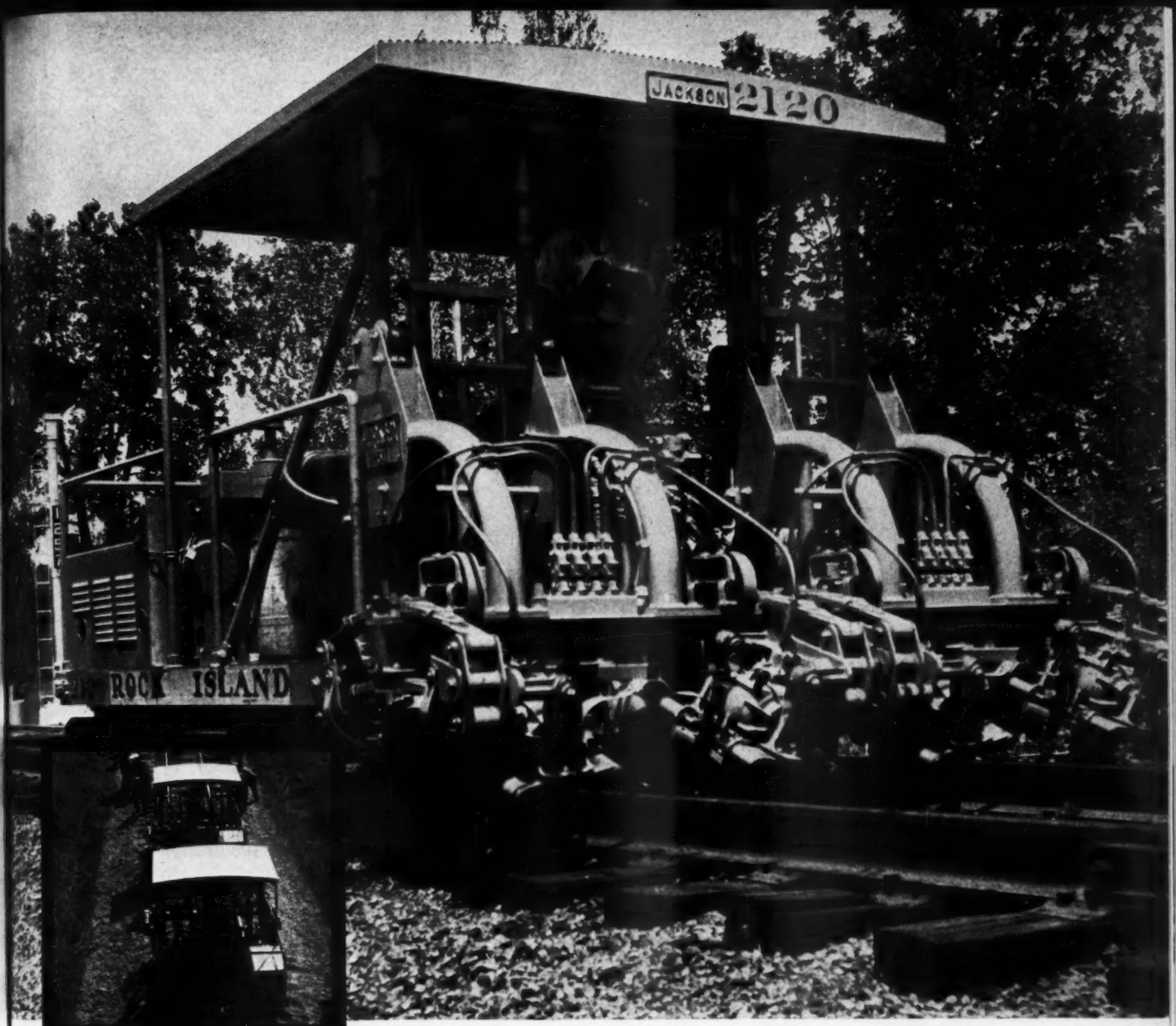
Armco Perforated Pipe is supplied in diameters from 6 to 48 inches, lengths up to 20 feet. Easily attached coupling bands join individual lengths into a strong, integral conduit.

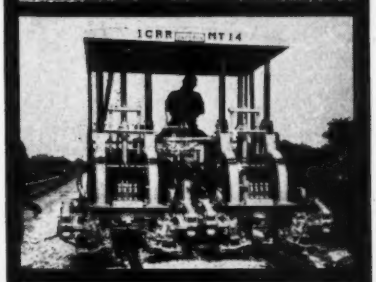
Armco Perforated Pipe is an efficient yet economical way to stabilize roadbeds once and for all. With scientifically-placed perforations in the invert, this special duty Armco Pipe drains harmful ground water away from trouble spots. No more safety hazards, no more high maintenance bills.

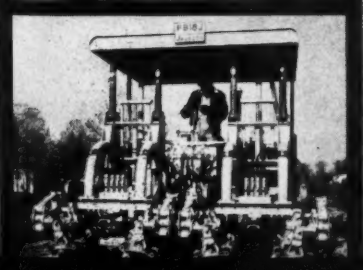
Equally efficient for old installations or new construction, Armco Perforated Pipe has the strength and durability to meet every subdrainage need and provide long, trouble-free service. Flexible corrugated metal design withstands severe loading conditions without crushing or cracking.

Armco engineers will be glad to work with you on your specific problems. Write today for data. Armco Drainage & Metal Products, Inc., 3607 Curtis St., Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: Write: Guelph, Ontario. Export: The Armco International Corporation.

Armco Perforated Pipe







The JACKSON TRACK MAINTAINER

PUTS UP PERFECT TRACK IN A WIDER RANGE OF BALLAST AND CONDITIONS THAN ANY OTHER TAMPING EQUIPMENT!

Unmistakable proof of this fact is found in the almost universal acceptance of this machine by America's leading railroads. To make sure your track maintenance dollars do maximum duty, get the complete facts concerning the Jackson before making any commitments. The evidence of its superiority is so outstanding we are confident you'll specify no other.

Acquirement plans to meet your needs

JACKSON VIBRATORS, INC.
LUDINGTON, MICHIGAN

"Chipman weed killers do such a good job, I decided to use some around our estate!"

Chipman chemicals and application service are backed by 45 years of railroad experience. An extensive line of weed, grass and brush killers is available to meet varying conditions. Included are:

Atlacide	Chlorea	Brush Killer
Atlas "A"	Chlorax	Telvar W
Atlas "D"	TCA	Borax

Let us solve *your* weed problems with the *right* chemicals and application service!

CHIPMAN

Chemical Company, Inc.

Bound Brook, New Jersey

16 Strategically Located Chipman Plants

trim right-of-way

MAINTENANCE COSTS

with this

NEW HIGH SPEED BRUSH CUTTER!

★ Light weight puts both arm and shoulder carrying position reduces operator fatigue

★ More powerful 2.5 h.p. motor designed for continuous, heavy-duty service

★ Saw arm elbow and knee joints give operator extra maneuverability and firmer footing

★ Lower-cost, easier maintenance . . . "V" belt drive

"Slash" is the word to describe what the new Southworth portable Brush Cutter does to right-of-way maintenance costs. One operator, plus this lightweight, versatile performer, does the work of eight men with brush hooks or scythes. The two big features that make this equipment so valuable are extreme maneuverability and "work horse" power. Exclusive saw arm elbow and knee joints provide easy cutting of brush, trees or limbs at any height within reach. Extra power permits cutting of trees up to 10" and larger, by notching.

The major portion of the Brush Cutter's 39 lbs. is carried comfortably on the operator's back...nature's saddle...where the weight is hardly noticeable. "V" belt drive simplifies field maintenance, eliminates costly repairs, gear stripping, etc. Added features include automatic clutch, finger tip throttle control and large gas capacity for long hours of uninterrupted use. The cutting arm is easily disassembled in less than one minute for convenient transportation. Special 10" heavy duty circular saw is positioned for operator safety.

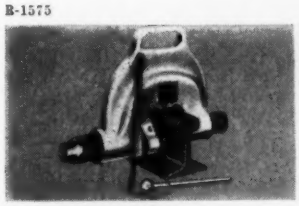
Write for descriptive bulletin and prices . . .

★ **Maintenance Equipment Company** ★

Division of Poor and Company

RAILWAY EXCHANGE BUILDING · CHICAGO 4, ILLINOIS

B-1575



VELOCITY POWER RAIL PUNCH
Takes only an instant to punch clean, smooth hole for track bolts. Needs no electricity, compressed air, hydraulic power; operates from small blank cartridge; no open flash or recoil. Only one major moving part, the piston.

MECO RAIL AND FLANGE LUBRICATOR
Doubles to quadruples curve rail and locomotive wheel flange life, by reducing friction between rails and wheel flanges on curves. Also makes possible higher speeds with greater safety.

MACK REVERSIBLE SWITCH POINT PROTECTOR
Prolongs the life of switch points about 4 times; then is reversed and again extends the switch point life for another similar period.

MECO POWER RAIL LAYER
Reduces labor cost to minimum in laying Standard Rails, Long Rails, Continuous Welded Rail. Operates efficiently with large gang of 100 men or more and requires a machine crew of only 3 or 4 men.

RAILWAY

TRACK and STRUCTURES

Subject:

Dear Readers:

Making Policy Decisions

In conversations with maintenance of way men in various parts of the country in recent weeks, a situation has come up which needs discussion.

This isn't to say that the situation is a new development. It isn't. It has existed about as long as there have been railroads. But it isn't altogether a healthy one, and perhaps some modification of it would create, on some railroads at least, an atmosphere more conducive to progress.

Let's get at it this way:

Every railroad must, of necessity, have an established "policy" with respect to just about every aspect of property maintenance and construction. These policies on particular railroads have presumably been established after careful study of all pertinent factors, during which all interested and responsible parties have had an opportunity to express their views. The policies are then determined by an individual or a handful of individuals. It can't be expected that everyone will be in agreement with such policies but at least all concerned (theoretically, anyway) have had a chance to express their views.

So far, there is nothing to quarrel about. But in actual practice (and this is the situation that has come up in recent conversations) there is nearly always some opposition to the official policy that has not had an opportunity to express itself. Here's an example: One large railroad has adopted a certain attitude toward a particular type of track construction. From conversations with some of the engineering officers of this road, one gathers the impression—more from what is not said than from what is said—that they had not had an opportunity to express their views about the matter in question.

Another example: This instance involves a method of performing a particular type of track work. Instructions for using the method came from system headquarters. Remarks made by men in the field indicated that the instructions had come as a surprise to them, that they would like to have had an opportunity to present their viewpoints before the final decision was made.

We hear a lot these days about the need for proper communications inside individual companies. Usually the complaint is that there are poor communications between departments. However, the instances cited above (and they can be multiplied many times) are evidence of faulty communications within the same department.

Why are we concerned about this matter? Simply because of the established fact that progress depends on the free flow of ideas, for that is what is meant by "good communications." Decisions made under conditions where all concerned have an opportunity, or feel free, to state their positions certainly have a better chance of being sound than those made in a relative vacuum.

It can hardly be hoped that any decision regarding policy will be entirely satisfactory to all concerned. But if they have been consulted, and moreover, if reasons for the decision have been explained, there will be a higher degree of cooperation in putting the policy into effect than might otherwise be expected.

MHD

LOOK . . . AT THIS EASIER, THRIFTIER WAY TO STOP WEEDS

COMPARE THE RATE—Enough UREABOR weed killer to treat 12 square feet is held in this hand! Consider the convenience and economy afforded by a rate of application as low as 1 lb. per 100 square feet of area.

COMPARE THE EASE—Applying UREABOR weed killer is as easy as walking! By actual test, one man spreading this granular material *dry* with the PCB Spreader can cover a given area in less time than can a two-man spray crew.

COMPARE THE RESULTS—The killing effect of UREABOR continues throughout a season or more! A single application can mean a weed-free surface. Roads from coast to coast are using UREABOR to get the lasting control it provides.

COMPARE THE COSTS—UREABOR kills weeds for pennies; saves you dollars! It is low priced . . . your initial outlay is small. Further economy comes from low rates of application, savings of man-hours, and convenience in handling and storage.

COMPARE . . . 20 MULE TEAM UREABOR® WEED and GRASS KILLER

The PCB Spreader applies Ureabor quickly and uniformly at low rates. It holds enough Ureabor to treat up to 2500 sq. ft. without refilling. Available for $10.75 delivered —anywhere in U.S.A.

UREABOR invites comparison with all other weed killers from any standpoint. What is your gauge of measurement? Is it EFFECTIVENESS? . . . SAFETY? UREABOR is effective and safe in every respect. It is *nonflammable, noncorrosive* to ferrous metals, *nonpoisonous* when used as directed. No product is easier to apply . . . there is nothing to mix; no water to haul. Check all the advantages of UREABOR and you'll agree that it stands alone. Write for literature.

AGRICULTURAL SALES DEPARTMENT

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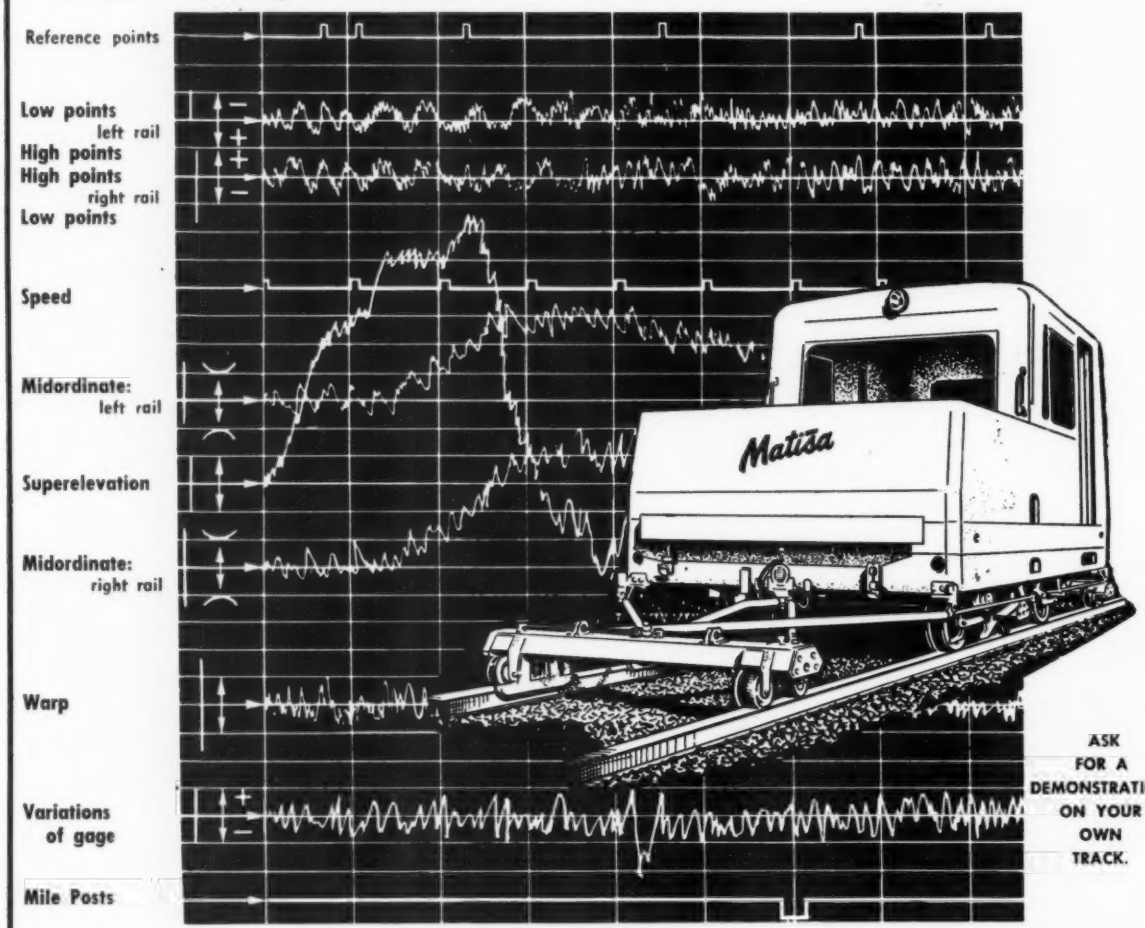

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(2) to verify the effectiveness of completed work programs;

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News Notes

. . . a resumé of current events throughout the railroad world

RAILWAY

TRACK and STRUCTURES

FEBRUARY, 1957

The 13 regional Shippers Advisory Boards have estimated that carloadings for the first quarter of 1957 will show an increase of 3.7 per cent above the same period last year. Their estimate: 7,045,344 cars this year as compared with 6,795,863 actual carloadings last year.

•

The New York Central has announced plans for the construction of modern electronic freight classification yards at Elkhart, Ind., and Youngstown, Ohio. The road recently completed a similar yard at Buffalo, N. Y. The two new yards, to cost a total of $21 million, should be ready early in 1958. Construction has begun at Elkhart, and will start soon at Youngstown.

•

A nine-day strike of members of the Brotherhood of Locomotive Firemen and Enginemen on the Canadian Pacific ended recently with the appointment of an independent tribunal of three judges to make a report on the basic issue—whether firemen are to be eliminated from road freight and yard diesels. The union had rejected the report of a conciliation board which recommended, among other things, that firemen on road freight and yard diesels be considered unnecessary. The newly appointed board of three judges has until October 1 to turn in its report. In the meantime, the firemen have been granted a temporary wage increase of 12 per cent.

•

President Eisenhower's budget message, which went to Capitol Hill on January 16, advised Congress that recommendations of the Cabinet Committee report on Transport Policies and Organization are among proposals which "need earnest and prompt attention with a view to determining whether new national policies should be adopted." The Cabinet Committee program was before Congress last year, but no action was taken on it. The program includes rate-freedom proposals designed to give railroads and common carriers generally more leeway to adjust competitive rates.

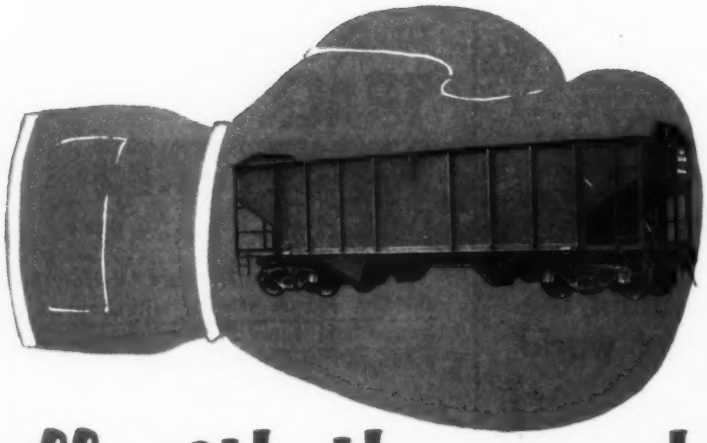
•

The Interstate Commerce Commission has been advised that the eastern and western railroads are seeking freight rate increases that will amount generally to 22 per cent. This figure includes the so-called interim increases that went into effect late last year (see *RT&S*, Jan., 1957, p. 19). Meanwhile, the commission has before it a petition of southern railroads for a 7 per cent increase to offset higher costs and obtain funds to continue their capital improvement programs. Hearings on this petition were concluded in Washington on January 11.

•

In a three-way switch among top railway officers, D. V. Fraser, president of the Missouri-Kansas-Texas since 1945, moved up to fill the vacant post of board chairman; William N. Deramus, III, resigned as president of the Chicago Great Western and was elected chief executive of the Katy to succeed Mr. Fraser; and E. T. Reidy, vice-president and general manager of the CGW, stepped up to president and chairman of the executive committee of that road.

only WESTERN BUMPING POSTS... "roll with the punch"



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Model 30

Ability to roll with the punch is the difference between a knockout blow and just another jab. The exclusive shoe castings on Western Bumping Posts clamp around the rails and perform this shock-absorbing function. When struck a severe blow, they slide or "roll with the punch" . . . only a few inches . . . and dissipate the remaining force that usually breaks ordinary posts. More effective. Fewer parts to replace.

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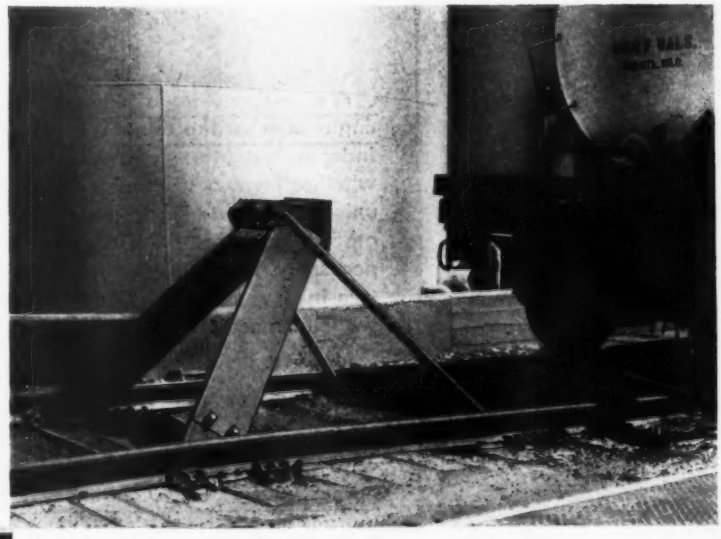

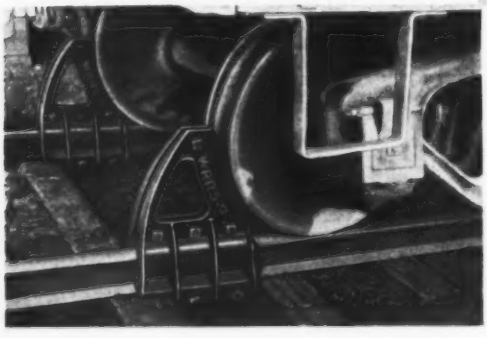

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One of a series of ads featuring new WESTERN products formerly supplied by BUDA

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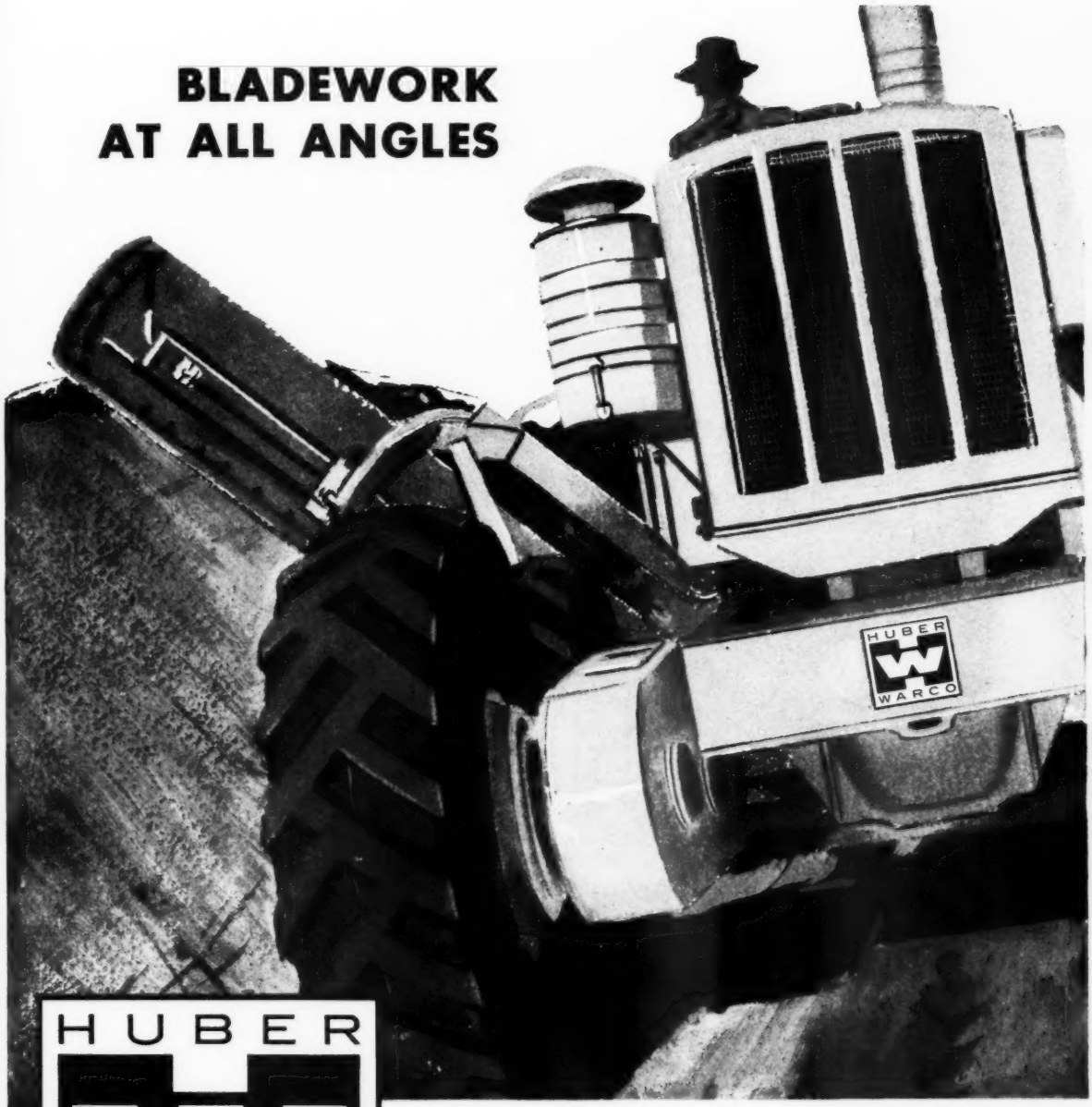

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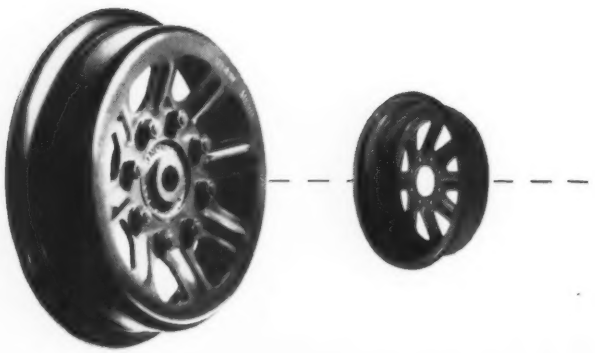
. . . think first of **Fairmont**



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79 West Monroe St., Chicago 3

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New York 7,
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Washington 4, D. C.
1081 National Press Bldg.

Cleveland 13,
Terminal Tower

Atlanta 9, Ga.
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835 Terminal Sales Bldg.

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Ltd.
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Subscription price to railroad employees only in the U.S., U.S. possessions and Canada, $2.00 one year, $3 two years, payable in advance and postage free. All other countries, $8 one year, $16 two years. Single copies 50¢. Address correspondence concerning subscriptions to R. C. VanNess, director of circulation, 30 Church Street, New York 7.

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Member of the Associated Business Papers (A.P.B.) and of the Audit Bureau of Circulations (A.B.C.) and is indexed by Engineering Index, Inc.

PRINTED IN U.S.A

RAILWAY

TRACK and STRUCTURES

FEBRUARY, 1957 **Vol. 53, No. 2**

"Dear Readers" **18**

Amid all the talk about improving communications between departments, is there not also a need for improved *intra*-departmental communication?

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How a special gantry simplified the handling of 52-ton slabs in replacing timber-pile approaches on the Western Pacific.

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Tie Cars Cut Unloading Costs **32**

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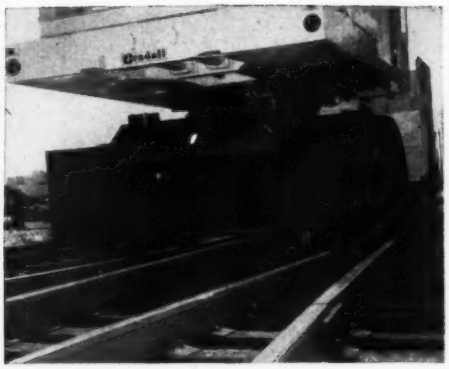

Gradall's Self-Compensating Guide Wheels—both front and back—are raised and lowered pneumatically by push-button, providing easy alignment for fast track positioning. They compensate automatically as the tires move up and down when crossing over switches, frogs, etc. Only when Gradall leaves the track and moves on its rubber tires, are the guide wheels raised. Gradall's big tires enable it to be easily driven on the highway, right of way, or cross-country. It can quickly climb over rails at any angle to either cross over or straddle the track.

Gradall's self-compensating guide wheels give you highway mobility on your track

Costly work trains can be eliminated entirely when your new Railroad Gradall goes on the job. If track being worked must be cleared for traffic, the Gradall quickly and easily moves off the track onto the shoulder or across to the other track on two-track systems. Less than 5 minutes after trains have passed —Gradall is busily back at work!

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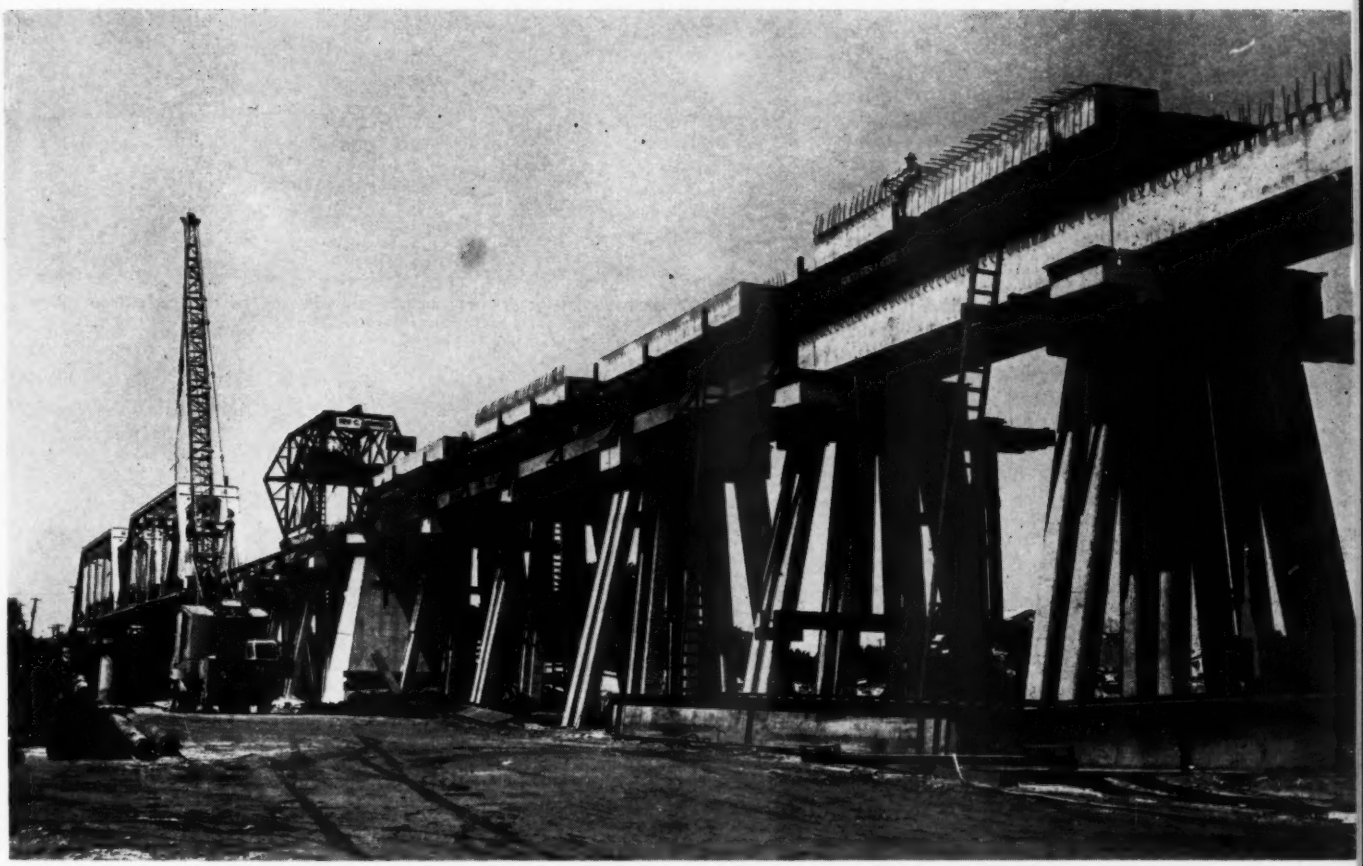
RAILWAY
TRACK and STRUCTURES



APPROACH trestle under construction on the Marysville side of river. Note trusses have been raised to new grade.

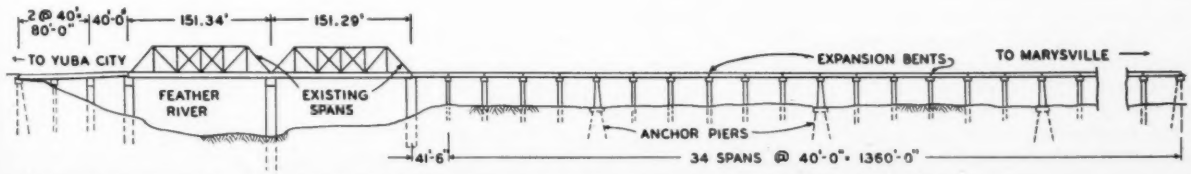
Bridge Has 40-Ft Concrete Spans

When the timber-pile approaches to a truss bridge in Northern California were washed out it was decided to replace them with a precast concrete pile and ballast deck structure.

Engineering considerations dictated a span length of 40 ft. This required slabs 4 ft deep and weighing 52 tons. The problem of handling slabs of this weight was solved by the use of a special gantry that made the task seem easy.

• Between Yuba City, and Marysville, Calif., there's a new railroad bridge that is distinctive for two reasons. In the first place, it isn't apt to be washed out as was its predecessor in December 1955. Second, it's a reinforced concrete bridge of almost entirely precast members with some unusual features, including concrete slabs a minimum of 40 ft in length.

But the design of the bridge is no



CONCRETE approaches replace timber-pile structures that were washed out by flood in December 1955.

more interesting than the methods used to install the two 52-ton slabs comprising each span. The task of lifting, transporting and setting the slabs into position on the caps was made seemingly easy by the use of a special gantry crane running on its own rails that were supported on girders spanning between the caps of the concrete pile bents.

But let's start at the beginning, back in December 1955. The Sacramento Northern (a wholly owned subsidiary of the Western Pacific) had a bridge between Yuba City and Marysville across the Feather river, which consisted of two 150-ft through-truss spans flanked by timber-trestle approaches. The approach on the Yuba City side was relatively short, but on the Marysville side consisted of about 850 ft of wood trestle and approximately 1000 ft of earth-filled approach.

There was a highway crossing at the same location, which used the same through truss spans across the main channel but which had separate approaches. Each of the main spans consisted of three trusses with the railroad track on one side of the middle truss and the highway on the other.

A Washout at Christmas

As the Christmas season approached in 1955, torrential rains were falling in northern California. The Feather river was rising and the people in Yuba City and Marysville were alarmed. They had cause to be. The resulting flood was the worst they had ever experienced. On the day before Christmas disaster struck. The flood hit Yuba City hard downstream of the Sacramento Northern bridge, at the same time passing the bridge and washing it out except for the two main spans and parts of the highway approaches.

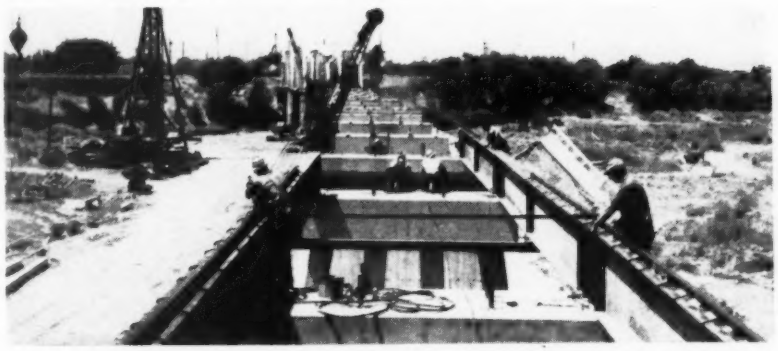
Reconstruction of the bridge was influenced by several considerations. One of these was the fact that, as an aftermath of the flood, the Corps of Engineers of the U. S. Army and the Bureau of Reclamation established a new flood plain level at a higher elevation. Giving consideration to this development, and the further fact that the underside of the bridge had to clear the new flood plain level by 2 ft, it became apparent that the main spans of the bridge had to be raised 8 ft.

Various considerations entered into the type of construction selected for the new approaches. The raise in the grade of the bridge, plus other factors, had ruled out the use of timber-pile construction. Steel deliveries were slow, and anyway it was found that a structure of reinforced concrete would have a slight edge on cost over steel.

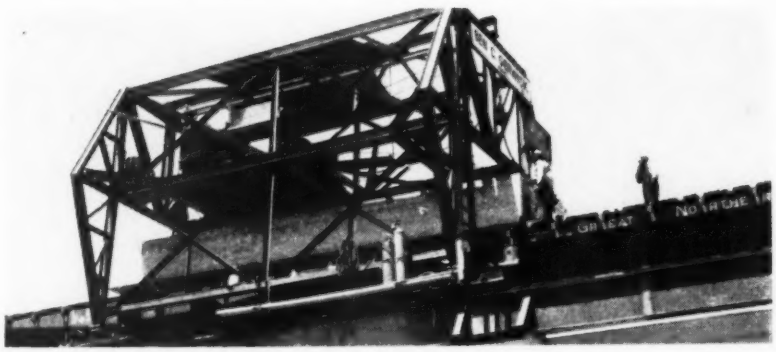
For these reasons it was decided to build a 1400-ft long reinforced concrete bridge structure with about 450 ft of earth fill approach at the Marysville side and a 120-ft reinforced concrete bridge structure of main spans, on the Yuba City side. A general contract for designing and constructing the bridge was awarded to Ben C. Gerwick, Inc., San Francisco. The design and construction work was carried out under the general supervision of Arthur W. Carlson, engineer of bridges and structures of the Western Pacific, and members of the Western Pacific's bridge design section.

Considerations of economical design led to the selection of 40 ft as the length of the concrete slabs. The two slabs forming each span are 5 ft wide and have the unusual depth of 4 ft. Two holes, each 18 in. in diameter, extend longitudinally through each slab slightly below the neutral axis. The design called for concrete curbs to be poured in the field. Reinforcement and anchorage for the curbs was embedded in the outside edge of each slab.

How slabs were installed



1 **RUNWAY for traveling gantry was constructed of secondhand rails laid on rolled beams spanning between caps of new bents.**



2 **A 40-FT SLAB, weighing 52 tons, is picked up from flat car by gantry which will carry it to a point directly over its final position.**

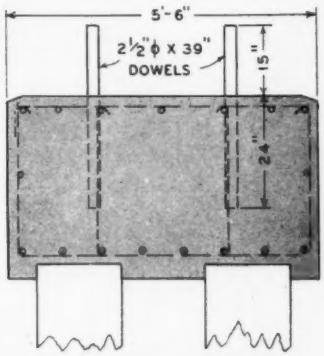
Approach on 1-Deg Curve

Design of the slabs had to give consideration to the fact that the 1,400-ft approach on the Marysville side of the river is all on a 1-deg curve. Hence, the ends of the slabs had to be tapered slightly to allow for the curvature.

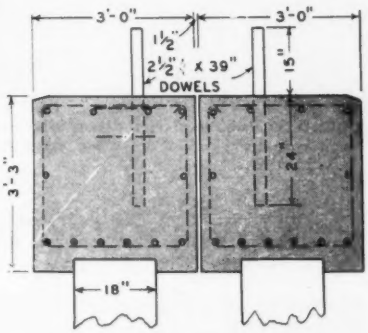
At intervals of six spans in the long approach, there is an "anchor" pier of solid concrete construction. Between the anchor piers the substructure consists of double bents of precast concrete piles. The piles are 18 in. square in cross section and have a maximum length of 73 ft to place them below the scour line. There are 8 piles in each bent, except that midway between the anchor piers there are 10-pile bents with expansion caps. In the latter bents the two rows of piles have separate caps which have a clear space between them of 1½ in. Steel dowels, 2½ in. in diameter, are embedded in the caps and extend up

3 GANTRY lowers the slab into position on caps. Steel rods in outside edges of slabs is reinforcing for curbs that will be poured in place.

Details of Caps



Cross section through typical cap.



Cross section through expansion cap.

into 4-in pipe sleeves in the slabs which were later grouted full.

Construction of the long approach began at the Marysville end. The piles were driven by a pile driver operating on the ground. Following closely behind the pile-driving work the caps were poured in place.

Installing the Slabs

The most unusual feature of the project, aside from the design of the bridge, was the manner in which the 52-ton deck slabs were placed. The traveling gantry that the contractor devised for this purpose is shown in the photographs. The gantry was mounted on double-flanged wheels, which operated on secondhand rails placed on the top flanges of 36-in rolled sections spanning between the caps of the bents.

To install a slab, the flat car carrying it was spotted under the gantry. By means of hoist cables attached to lifting lugs embedded in the top surface of the slab, the member was raised into the clear. The gantry was then moved along on the crane rails until it was directly over the point where the slab was to be placed. The slab was then simply lowered into place on the caps.

When the two slabs comprising a particular span had been positioned, the track was extended out over them to facilitate placing of the next span. On the average, only about two hours was required to place the two slabs comprising each span.

While the approaches were being built, the main spans were being raised the required 8 ft. This was done by jacking up the spans on steel cribbing and then placing concrete around the cribbing to conform to the shape of the pier.

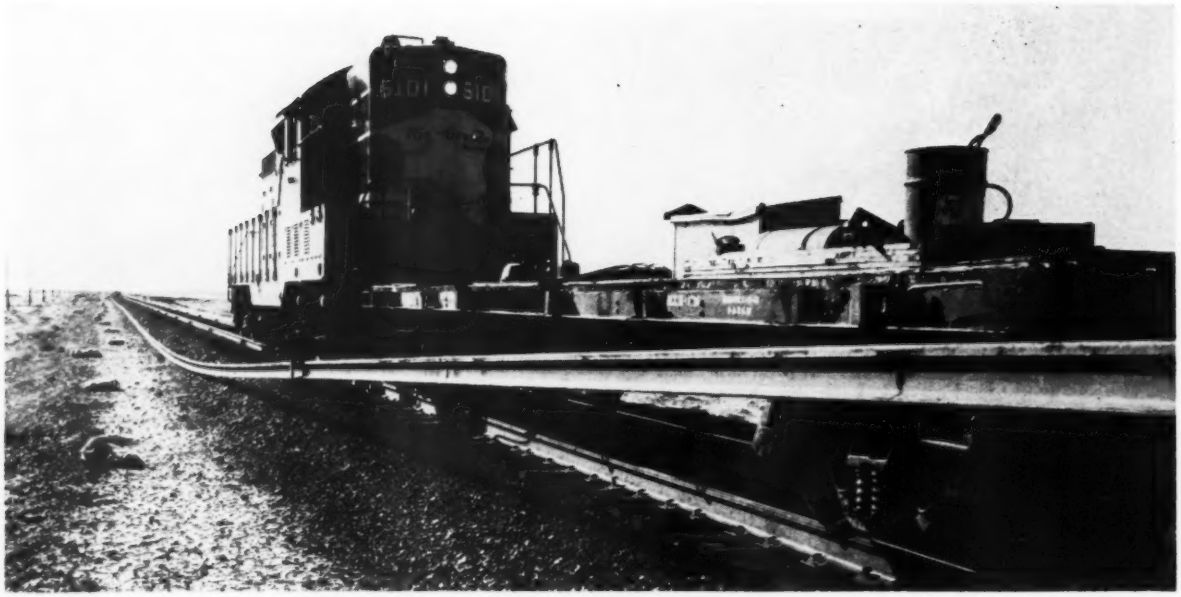
Prestressed Slabs on Walkways

The final step in constructing the approaches was to pour the curbs in place. At intervals of about 8 ft, brackets for supporting a walkway on each side of the bridge were cast integrally with the curbs. An unusual feature of the walkways is that they consist of prestressed and precast concrete slabs. The slabs are 2½ in thick, about 1 ft 5 in wide and span between the concrete brackets. The latter also serve as supports for pipe hand rails.

The walkway slabs are held in place by steel reinforcing bars, imbedded in the concrete brackets and extending up into 2-in round sleeves in the slabs. After the slabs had been placed, grout was placed around the bars in the sleeves.

As part of this project a four-lane underpass of similar construction was built in Yuba City to replace an existing structure, and the grade was brought up to correspond with that of the elevated bridge.

Because there were several interested agencies involved, reconstruction of the bridge could not be commenced before May 1 last year. However, once the work got underway it proceeded rapidly and the bridge was placed in service on August 31. A so-called "bridge party" marked the opening and civic leaders of Marysville and Yuba City rode the first train over the bridge after which they were entertained at a barbecue dinner held on the Marysville station grounds. Approximate total cost of the project was $1 million.



GUIDED by threaders on the two idler cars the long rails are deposited at the ballast toe line. Train carrying 15 or 16 strings of long rails was normally unloaded in about 1½ hr.

Unloading Long Rails By 'Push'

Many roads unload strings of continuous welded rail by pulling the train out from under them. The Rio Grande does just the opposite.

SECOND IDLER CAR from locomotive has threaders mounted at car-floor height.

FIRST PAIR of rails is pulled through threaders on first idler car by cables extending to locomotive (out of picture at right).

Fast method of connecting ends of successive rails . . .

RAIL ENDS are brought into alinement with train in motion by a simple pin-and-cable arrangement. Train is then stopped and. . .

. . .FISH PLATES are applied to replace the pin-and-cable connection. Secured by short pins, "joints" can pass threaders.

• It may look "backwards" to some people, but the Denver & Rio Grande Western is quite happy with its method for unloading welded rail hauled to the laying site from the welding set-up on flat cars. Rio Grande practice is to push the cars out from under the rails intead of pulling them.

Eliminated is the time-consuming signaling from front to rear encountered in conventional unloading methods. The entire operation is at the head end: Pulling, threading, tying one length to the next and aligning. There's no slack action in the train to contend with, fewer delays in anchoring. Here's how they do it:

To begin with, the D&RGW uses lengths of rail "tailor made" for the location. Most strings run 33 rails long; some run as high as 41 rails in length. Welding, in the particular case illustrated in the photographs, was done 16 hrs a day, Monday thru Friday. Using a single set of cars, all rails were unloaded on Saturday or Sunday. The unloading site was within 100 miles of the welding site so there was no trouble in getting the cars back in time for Monday morning's welding.

How Rails Are Guided

Two idler cars—converted flats—were used between the locomotive and the rail bearing cars. Each of the idler cars was equipped with two threaders—one on each side. Brackets were welded on the top of the end of the idler car farthest from the locomotive. Through these brackets was passed a piece of 110-lb rail. The threaders were slipped over the ends of this rail. The other idler car—the one nearest the locomotive—had similar brackets built into the truck closest to the locomotive. A piece of 110-lb rail was likewise passed through these brackets and threaders installed—one on either side.

First Rails Pulled Out

To get the operation "rolling," the locomotive was uncoupled from the train. Cables—one on either side—were passed up through the threaders and each connected by a clevis to the end of one of the first two rails to be unloaded. The other ends of the cables were secured to the knuckle pin of the locomotive. The locomotive then merely pulled the rails out through the threaders. When the rail ends were on the ground, they were connected by slotted fish plates to the previous strings on the ground. The ends of the first two rails unloaded at the laying sites, were anchored to a piece of rail which had been slipped between the ties at right angles to the track.

With the rail ends anchored, the locomotive was recoupled to the train. At this point rail anchors were installed on the ends of the 110-lb rail threader supports to keep the threaders from "riding off." Rail which overturned at the toe line when unloaded was easily righted when picked up for laying.

When the first two strings were nearly unloaded, preparations were made for tying on the second pair of long rails. With the train still in motion, yokes with short lengths of cable attached, were secured to the ends of the next two rails to be unloaded. These yokes were pinned through a bolt hole in each rail. Each cable had an eye in its free end.

A second pair of yokes, meanwhile, was similarly secured to the ends of the two rails being unloaded. These yokes were equipped with pins on their upper surfaces. When the trailing ends of the first rails passed the leading ends of the second pair, the cables were simply slipped over the pins so that, in effect, the first rails were "pulling" the second pair. This alined the rail ends, leaving a slight gap.

At this juncture, the train was stopped.The yokes were removed and fish plates applied to the rail ends, which were secured through the bolt holes with short pins held in place by cotter keys. This design was necessary to permit them to pass freely through the threaders. With fish plates applied, the train moved on.

Normally, there were about 15 or 16 strings to unload each weekend. After the rails had been threaded, about 1½ hr were required to complete the job. During this time the train occupied the track without interruption. And the total manpower, aside from the train crew and supervision, was only four, sometimes five, section men.

This is the way ties are loaded into the cars . . .

TWO TRAMLOADS of treated crossties, plus a few extra, can be loaded into each of the four compartments of the car.

Tie Cars Cut Unloading Costs

The Missouri Pacific has slashed 40 per cent off its tie-distribution costs and reduced hazard of injuries by the use of special cars from which crossties can be easily ejected by sliding them lengthwise out the sides.

Development of these cars is one phase of a three-part attack on the problem of reducing tie costs. Mechanization of tie renewals and the placing of this work on a two or three-year cycle are the other two phases of the attack.

• The cost of handling, distributing and inserting crossties is under sharp attack on the Missouri Pacific. The overall costs have already been substantially reduced, and further reductions are expected in the future.

The development of special tie cars constitutes an important phase of a three-pronged attack on the problem. Another phase was the decision to take most of the tie-renewal work out of the province of the section forces and to place it in the hands of 15-man mechanized tie gangs, one on each division. The third phase was the decision to place tie renewals on a two to three-year cycle so that the number of renewals would be sufficient to realize the full benefits of mechanization and special gang organization.

Cost Cut 65¢ per Tie

The MP renews about 1,200,000 crossties each year. Formerly, the labor cost for this work averaged $1.67 per tie. Mechanization and reorganization of the tie-renewal operation has sliced about 65 cents per tie from the road's total tie installation cost.

The former practice was to haul the ties in standard open-top coal cars and to unload them by hand over the sides. The cost of unloading the ties in this manner was $0.104 per tie. Using the special tie cars and the same number of men as formerly this cost has been cut to $0.0605 per tie. But experience with the cars has shown that a fewer number of men are required on the work train to unload them. For this reason it is expected that the saving will amount to at least 6 cents per tie. It is figured that this saving is sufficient to pay for the cost of converting 120 cars within a two-year period.

The road's efforts to develop a special tie car got under way in 1955. Two 50-ton gondola cars were withdrawn from revenue service and were revamped at the railroad's shops. Three cross partitions were installed in each car to divide it into four equal compartments each having an inside width of 9 ft 5 in and a length of 10 ft 3 in. Openings, 2 ft wide, were cut in the sides of the cars, one on each side of each compartment, through which the ties could be

. . . and this is the way they come out.

WHEN THE unloading foreman calls for a certain number of ties, men in the compartments use special tie hooks to slide them out.

ejected by men working in the car.

When the work on the cars was completed, they were loaded with ties and taken out on a trial run. The ties were loaded by a crane at the treating plant, one tramload being placed in each compartment, with the ties lying lengthwise with the car. This proved unsatisfactory because the men in the cars found it too hard to maneuver the ties to the doors for ejection. Also, the men had to use tie tongs when handling the ties, presenting the possibility of damaging them, and some ties rolled down the embankment slopes.

After this experiment, it was decided to load the ties crosswise to the car. Upright planks were placed across the side openings to prevent the ties from slipping out while in transit. This worked out much better than the first trial; the men were able to unload the ties with less effort by sliding them out the openings.

Doors Present a Problem

A steel sliding door was designed for each side opening of the compartments to replace the experimental upright planks. Each door was hung, top and bottom, on rods long enough to permit the entire opening to be uncovered by sliding the door lengthwise with the car. A handle was welded near the bottom of each door and a pin-and-slot fastening arrangement was designed to hold the door in the closed position while the car was in transit.

Problems also developed with this arrangement. During the loading operation, when the chain slings were pulled out from under a tramload of ties, the ties were shaken up, causing some of them to become lodged against the doors, making it difficult to slide the doors clear of the openings. Ties shifting in transit would also impinge against the doors.

This difficulty was solved by hinging the doors only at their tops and providing a hasp-and-key arrangement at the bottoms. Now, even though ties press against the doors, the keys can be removed, the doors swung out at the bottom and slid aside on their top hangers to clear the compartment openings.

Car Sides Were Raised

The sides of the gondola cars were 4 ft 10 in above the car floor. This height was more than sufficient to permit one tramload of treated ties to be loaded into each compartment and, by breaking the bundles, a few more. Yet, it was realized that the overall work-train expense could be reduced and the tie gangs could be supplied for a longer time between unloadings if the tie cars could be altered to hold more ties.

Consequently it was decided to increase the capacities of these cars by raising the sides and ends 9 in. This placed them at a height of 5 ft 7 in above the floor. Each compartment will now hold two tramloads of treated ties, and a few extra, so that each car will contain from 390 to 400 of No. 4 and 5 crossties, and more of the No. 3's and 4's.

Meanwhile, since the car-side openings permitted ties to be slid lengthwise out of the compartments, the road decided to eliminate the use of tie tongs and to devise a tool which would facilitate the unloading without any possibility of damaging the ties. For this purpose a small hand hook was developed, similar to the hooks used by cargo handlers when moving cotton bales but without the long penetrating looped point of this tool. The new hook is made of ⅝-in steel rodding, looped at one end to form a handle and shaped to a pointed hook at the other. The tool is about 2 ft 2 in long and its point is bent 100 deg to form a

MORE PICTURES ON NEXT PAGE ▸ ▸ ▸

Doors are key feature of cars . . .

HASP-AND-KEY arrangement is used at the bottoms of the doors for holding ties in place while car is in transit. When keys are removed . . .

. . . LOWER end of door can be swung outward even though ties may press against it and then slid sidewise on its upper hangers to clear opening.

CAR SIDES were raised 9 in to give the 50-ton gondolas more capacity and compartments were formed by adding three cross partitions.

hook which will grab the end of a tie without piercing the wood to any harmful extent.

The 120 special tie cars were converted from 50-ton gondola cars at the railroads shops at Sedalia, Mo. The cost was approximately $1,300 per car.

At present, 48 of the cars are assigned to the road's Arkansas division and are loaded at treating plants located at Little Rock, Ark., Texarkana, Tex., and Alexandria, La. Another 44 of the cars are assigned to the Houston terminal and are loaded at plants at Houston, Tex., and at Alexandria, La. The remaining 28 cars are assigned 14 each to the Kansas City and the St. Louis terminals and are loaded at plants located, respectively, at Leeds, Mo., and Dupo, Ill. The treating plants have the numbers of these cars and see that they are shipped only to their assigned territories.

The crossties are loaded at the treating plants into the compartments of the tie cars by cranes which lift full tramloads as they come from the retorts. Using two chain slings attached to a rectangular bridle frame, two men on the ground sling the chains around a load and fasten the free ends to the far side of the bridle frame. When the ties are lifted to be placed into the compartments, another man on the car signals directions to the crane operator. When the load is deposited, this man unfastens one end of the chains from the bridle and moves to a safe distance as the slings are pulled from beneath the ties. As the crane moves to the next tramload of ties, the man on the car straightens any ties which may have been jostled out of position while the slings were being pulled free.

The ties are shipped in lots of from 10 to 15 cars at a time and are unloaded from a work train by the personnel of section or available track gangs. The number of ties to be unloaded are determined from a tie inspection made by the roadmaster just prior to the time that the ties are to be unloaded. White paint marks are dabbed on the ends of the ties to come out so that the unloading foreman can unload new ties near each marked spot.

The foreman of the unloading train keeps a record of all operations and makes out a report so that the unit cost of unloading can be accurately computed, including work-train expense.

The road is pleased with its use of these special cars. The reaction of the management of the treating plants was expressed by F. R. Pierce, superintendent of the Koppers Company plant at Little Rock, when he said: "The new tie cars are 100 per cent better than any cars which came in here for loading in the past. I can plan my day's work because I know just how many ties each car will take."

Conference Gets at the

Roots of the Weed Problem

Second of Two Parts

The discussion that took place at recent conferences on weed control at the AAR Central Research Laboratory at Chicago is summarized in these articles, the first of which was published in January.

Two, two-day conferences were held, one on November 8-9, 1956, and the other November 13-14. Essentially the same material was covered at the two meetings.

The January article dealt with the material presented on the first day of each conference; this article gives the highlights of the discussions on the second day.

• After C. G. Parris, agronomist, AAR, had discussed the control of specific vegetation, Prof. Slife, extension agronomist, Department of Agronomy, University of Illinois, said it was important that railroads be properly advised as to which chemical to use in order not to waste materials. He suggested the railroads may want to consider the permanent employment of agronomists who would be in charge of their weed-control programs.

R. J. Shelton, chemist, Southern, wanted to know which chemicals were the most effective for controlling conifers. W. S. Jackson, Grasselli Chemicals Department, DuPont Company, replied that "Ammate" X weed-and-brush killer plus a spreader sticker were effective for this purpose. Although this chemical is relatively expensive, he said, the kill often holds for a period of from three to six years so that the annual cost is favorable.

During a discussion of additives and combinations of chemicals, Lin Harris, Chipman Chemical Company, declared that chemicals should not be mixed indiscriminately, such as contact and translocated types. Only those having similar modes of action should be combined, he said. However, he added, it is possible to combine chemicals which will kill both broadleaf plants and grasses, and these combinations are already available on the market.

● Use of Wetting Agents

D. W. Young, Rohm & Haas Company, stated that surface-active agents, or surfactants, are organic materials which reduce surface tension of water and make water wetter. All plants are covered with a cuticle that is often difficult to wet, he said. Most weed-control products are aqueous solutions or emulsions of organic or inorganic acids, bases or salts that may or may not give good wetting. Increased wetting and penetration of the cuticular layer is obtained from the addition of a surfactant to the herbicide. The increased wetting and penetration enhances the activity of herbicides. Dr. Gleason of Iowa State College was able to increase the translocation of an amine of 2,4-D about 800 per cent, he said.

Surfactants vary in their activity and wetting, according to Mr. Young. The study of surfactants is complex, because of the many types and formulations available. For instance, in the wetting of an ammate solution it was found that Triton X-102 gave complete wetting in 26 sec, that an equal concentration of Triton X-100 required 1 min and 27 sec, and a third commercially used surfactant did not wet in 5 min.

A railroad weed-control program should not overlook the use of surfactants, he said, as the cost of a small amount of surfactant required to obtain wetting and penetration of the herbicide is readily offset by increased efficiency of the herbicide.

Those presently using surfactants should make sure they are using them correctly, Mr. Young said, and not have them salted out with caustic solutions. Care should be used to select the proper type so that the most weed control per dollar will be obtained, he said.

Wetting agents, Mr. Harris continued, when added to the chemical solution, frequently increase the weed kill, sometimes as much as 10 times. Since 2,4-D moves downward, but very little laterally, the resultant kill may not be as effective as desired. But when a wetting agent is added, he said, the kill is measurably increased.

G. W. Luvisi, National Aluminate Corporation, said that wetting agents were particularly important when used with systemic herbicides, as they generally increase the initial kill through better wetting and spreading. However, he pointed out, wetting agents are not substitutes for herbicides, and chemical dosages cannot be reduced without reducing the weed-control results.

Dr. M. J. Janes, biologist and chemist, Socony Mobil Laboratories, said aromatic oils are good contact killers and can be used without additives in direct or alternate sprays. Acetic acid, he said, has been used to some extent as an additive to increase the kill, but the use of additives in these oils is open to further development. Oil

Some of the things they talked about . . .

- Chemical combinations
- Use of additives
- Dosages
- Wetting Agents
- The problem of drift
- Noxious weeds
- Spray equipment
- Speeds of spray trains
- Spraying schedules
- Adequacy of programs
- Oil on rails
- Brush spraying
- Effect of wet weather
- Killing sprouted grain
- Spraying conifers
- Identification of chemicals

has good wetting tendency, he said, so it is not necessary to add wetting agents when using aromatic oils.

Mr. Parris pointed out that chemical combinations are tricky; some are excellent when used in one region, but ineffective in others. The point to remember, he said, is that each chemical has a specific purpose, hence, when a small amount of one is added to a small amount of another, good results cannot always be expected.

● Noxious Weeds and State Laws

In a discussion of noxious weeds, Prof. Slife said he knew of no federal laws relating to them—only against the shipping of seeds. Hence all weed-control laws are on the state level, he said. Some states have no laws against noxious weeds and some have laws but no enforcement agencies. The states about which the railroads are most concerned, he said, are the ones which have both laws and the means of enforcing them. Enforcement is usually on the county or township level.

Weeds are termed "noxious" from an agricultural viewpoint, that is, when they affect crops and are hard to eradicate, Prof. Slife explained. The noxious weeds most frequently included in the state laws are the Canada thistle, field bindweed, perennial sowthistle, hoary cress, Russian knapweed, quackgrass and leafy spurge. The incidence of these weeds varies from state to state, he said, but are the most common. Some southern states also legislate against Johnson grass, he said.

In general, Prof. Slife continued, noxious weeds are the hardest to eradicate as some are not affected by 2,4-D and must be treated with soil sterilants, which are more expensive. They should be dealt with while still in spot locations and before they get solidly entrenched. The use of amino triazole is effective against the Canada thistle and poison ivy, he said. The Canada thistle, field bindweed and perennial sowthistle can be controlled by 2,4-D, but this chemical will not damage the other noxious weeds.

Some of these noxious weeds are hard to identify, he added, and any person a railroad may employ to head up its weed-control program should be more versed in botany than in chemistry. To assist railroad men in the identification of noxious weeds, Prof. Slife suggested that they obtain books on the subject, and also get samples of each of these plants and keep them on file for ready reference.

● What Rates of Application?

L. L. Coulter, The Dow Chemical Company, spoke about the need to vary dosages. Relatively low dosages give excellent results in California, he said, because the weeds there are mostly annuals. In the south and other areas where the perennials predominate, higher dosages must be used to get the desired kill. It must also be kept in mind that weeds which are often considered resistant can be killed merely by increasing the dosage.

Prof. Slife warned that some combinations of chemicals, applied at heavy rates, will kill the top growth faster but will not kill the root systems, which then send out new shoots. If the dosages of these chemicals are less heavy, he said, the plants will die more slowly, but the root systems may be killed through translocation. He believes that smaller dosages in two applications give the best results.

Prof. Slife feels that amazing progress has been made in the development of weed and brush-killing chemicals. He pointed out that 2,4-D, which everyone now takes for granted, has been on the market only for about 10 years. As yet, he continued, the answers to weed-control problems are not all available, but, on the other hand, full evaluation of the presently available chemicals has not yet been made. It is his opinion that a few more years' experience with various chemicals should give a better understanding of how to use them most effectively.

When discussing the subject of spray equipment, J. P. Quarles, National Aluminate Corporation, mentioned that utility companies obtain excellent results when killing brush with off-track equipment. The cost, however, runs about $50 per acre treated, as compared with $15 to $20 per acre on the railroads when on-track equipment is used. If the on-track equipment is not doing a good job, either the dosages are too light, the train was moving too fast, or the wrong type of chemical was being used, he asserted.

● Are Budgets Large Enough?

Some railroad budgets for weed killing are the same as they were 20 to 25 years ago, and there is a tendency with today's mechanization to spread the materials over a much larger area, declared Mr. Quarles. This trend to get as much area covered as cheaply as possible, he said, is resulting in thinner dosages. He believes that railroad weed-killing budgets should be re-examined in the light of today's knowledge of weed killing.

Mr. Quarles pointed out there is little point in spraying the same chemicals on the track year after year, because the species of plants change as each one is killed off.

Here are a few of the opinions expressed

- Kill is measurably increased when wetting agents are used
- Railroads should consider the employment of full-time agronomists to supervise their weed-control programs
- Heavy dosages of some chemicals may kill top growth but not the root systems
- Weed-control budgets should be re-examined in the light of today's knowledge

Manufacturing and service companies represented at the conferences

American Chemical Paint Company
American Cyanamid Company
The R. H. Bogle Co.
Chipman Chemical Company, Inc.
W. T. Cox Company
The Dow Chemical Company
General Chemical Division, Allied Chemical & Dye Corporation
Grasselli Chemicals Department, E. I. DuPont de Nemours & Co.
National Aluminate Corporation
Pacific Coast Borax Company Division, United States Borax & Chemical Corporation
Reade Manufacturing Company, Inc.
Rohm & Haas Company
Socony Mobil Oil Company, Inc.

by individual conferrees . . .

- Railroad property needs heavier dosages than agricultural lands
- Fall and spring inspections should precede weed-killing programs
- Soil sterilants should be applied in the spring to avoid need for heavier fall dosages
- There is need for means of identifying weed-killing chemicals by their trade names
- Only chemicals with similar modes of action should be combined

For example, after using 2,4-D, he suggested that another hormone weed killer, such as 2,4,5-T, be used the following year. He said that heavier dosages, sometimes four times as much, are needed on railroad properties as on agricultural fields due to drainage and soil conditions.

● Dealing with the Drift Problem

C. W. Bothe, maintenance of way chemist, Sante Fe, discussed the problem of drift. On many places on his road, he said, extreme care must be exercised to minimize its occurrence. One way to do this is to reduce the pressure and thus reduce the atomization. At one time his road used relatively high pressures, but now these are being held down to between 5 to 8 psi.

No spraying work should be done during high winds, Mr. Bothe said, as it is impossible to hold even slurry applications to the required channel areas under and on both sides of the bridge at such times. He believes a machine should be used when applying slurries, because of the resulting uniform distribution of material. On an average, he has treated 42 miles of pile-trestle bridges per year on his road at a train speed of 2 mph and at a cost of about nine cents per lineal foot. He has encountered particular trouble in handling weed eradication in yards and terminals with liquid-chemical sprays, due to the proximity of buildings and cars causing air currents that carry the material away from the points where needed.

Spray trains should move at a speed of about 11 to 12 mph, according to Mr. Bothe; faster speeds give poor results. Also, spray cars should be built to withstand heavy usage. On his road, the normal weed-control program is aimed to cover about 8,500 miles of track. In the interest of economy, he has tried the practice of skipping places where the weed growth was thin, but this hasn't been successful because of the cost incurred later on in killing the weeds which sprang up in the spots that were passed over.

● Oil-Spraying Equipment

C. H. Johnson and W. S. Wilson, both of Socony-Mobil Oil Co. Railroad Division, spoke on the type of spray equipment needed for use with oils. They emphasized that, since oil is a contact killer, it is important that not only must the oil be applied while the plants are young and tender, but also that the equipment must be designed to cover the vegetation completely with the material or the resultant kill will be disappointing. Four factors are important in the design of oil-spraying equipment, they said.

First, the nozzles must be as close to the ground as possible to minimize drift caused by crosswinds, or by the train movement itself. Yet, they must be high enough to obtain complete coverage of the higher plants. These considerations can be met by making the spray manifold adjustable in height.

The second factor is the selection of the proper nozzles, which are usually manufactured to spray water at 70 deg F at 40 psi. For this reason the viscosity effects of the oil must be considered when working out the nozzle capacity, as well as the spraying angles and spacing, because oil reduces the capacity and spray angle.

Third, they continued, is the proper angle and the spacing of the nozzles. While it is desirable to have the nozzles close enough together and with wide enough angles to get an overlap of the sprays as close to the manifold boom as possible (for obtaining complete coverage at the upper plant levels), wide angles increase the drift and give less "drive" of the spray. It was their opinion that the nozzles should be spaced from 6 to 8 in apart on the manifold and should have a maximum spray angle of 50 deg.

The fourth factor they mentioned was the pressure. Too high a pressure increases the atomization and drift of the material, while too low a pressure does not produce the desired spray angle. The pressure should be maintained close to, or slightly higher than, the 40 psi for which the nozzles were designed.

They then spoke of the difficulty, of which some roads complain, concerning wheel slippage that occurs following the application of oil sprays. It was their opinion that the weels of the first train over the rails after spraying generate enough heat to dry up the oil. However, one road has equipped its spray cars with sanding devices for applying sand immediately after spraying, and these are reported effective against wheel slippage. Other roads have equipped their cars with rail guards or shoes for keeping the oil spray from getting on the rails.

● Planning Control Programs

E. W. Cox, W. T. Cox Company, believes that more care should be exercised by railroad men in the selection of the proper weed-killing chemicals for their needs. Seldom is it possible to obtain best results with only one chemical when spraying a large mileage.

Inspections of the vegetation conditions both in the fall and spring should pinpoint progress being made and indicate areas where specific weed problems must be met. Photographs taken periodically at the same locations are excellent aids, he said. Use of spraying reports which show exact amounts of chemicals which were applied are also valuable.

Another vital factor, Mr. Cox added, is that chemicals should never be applied in "below-minimum" dosages. It is much better to reduce the mileage or spray widths than to cut the rate of application to conform with a certain cost per mile.

Other means of "economizing" include the use of equipment versatile enough to allow application at varying rates or varying spray widths as indicated by the vegetation encountered while spraying. Some new sprayer units will apply up to four different chemicals individually or in combinations at proper rates. This allows the user

to apply only the type of chemicals best suited for individual types of vegetation. Spot treatment with high-dosage rates of chemical to control specific species is also possible with this type of sprayer unit.

Certain companies graduate the nozzle sizes in their spraying equipment, Mr. Cox stated, to obtain a light dosage in the ballast section where the track is relatively weed-free. This concentrates most of the chemical on the berms where it is most needed. Mr. Cox noted that such outfits are not complicated and are desirable where such weed conditions prevail.

W. D. Chapel, Chipman Chemical Company, recommended train speeds of from 10 to 15 mph when spraying weeds and from 4 to 8 mph while spraying brush. For heavy brush growths this speed should be even slower so that complete coverage of the vegetation may be obtained.

J. A. Fellman, General Chemical Division, stated that programs should be made up on more than just a year-to-year basis; they should be projected ahead so as to give consideration to killing the hardy plants that move in. He likes the idea of taking photographs before and after spraying, as these make it easier to convince management that the programs are getting results.

● Facets of the Brush Problem

When F. N. Beighley, roadway engineer, Frisco, asked how often brush should be sprayed, Mr. Quarles replied that in general brush should be sprayed two years in succession and then left unsprayed for three or possibly four years. He said some roads make it a practice to spray brush on alternate sections one year and the intermediate sections the following year, except that the hardier brush may be given an extra application during any year.

Mr. Jackson stated that if brush is sprayed at a height of 8 to 10 ft, the saving in chemicals is substantial as compared with brush sprayed at 15 to 18 ft in height.

When the question was asked when to spray newly cleared brush areas, Mr. Quarles said that when brush reaches tree size, it should be cut and the stumps treated to the ground line with a basal spray. If basal sprays are applied during winter, he said, the work should be done carefully and never during a time when there is a possibility of drift. Fruit trees and ornamentals, he said, are difficult to identify in the winter and can be damaged by drift.

Mr. Chapel brought up the fact that Atlas "D," which is a contact-type weed killer, should never be sprayed during a heavy fog or mist. This work should be stopped at such times until the foliage is dryer, he said.

Brush-control sprays generally should not be applied until one-half to one hour after a rain, according to Mr. Jackson.

Mr. Johnson stated he had applied aromatic oils during light rains and that the resultant kill was still very good.

● How Rock Island Does It

J. T. Fitzgerald, engineer maintenance of way, Rock Island, described the weed and brush-control program on his road. The Rock Island began using chemicals for weed control on its main lines in 1925. Branch lines were burned until 1950, when aromatic oil treatment was begun. Chemicals used for main-line spraying are changed from time to time, he said, but in general they are all of the contact type. In yards he has used the aromatic-oil sprays, frequently followed by burning.

On his main lines he has used Nalco H-170, Chipman's Chlorax, Reade's Herbicide and other chemicals, the selection of which in general is determined by the annual rainfall. Results have been satisfactory, he said.

His weed-control program is started in the south about May 15, he said, progresses northward, and is programmed to be completed by July 4. This is followed by a second spot-spraying program and branch-line work which is completed about September 5. For brush work he used 2,4-D and 2,4,5-T, in combination, but this year he is trying out an application of Ammate to see if he can kill the more resistant brush. For killing vegetation under bridges, he said, he originally started with Borascu but has now switched to concentrated Borascu because it not only requires half the weight of material, thus reducing the amount paid for foreign-line transportation, but it also secures comparable results.

When the question was raised as to the results which could be expected from fall application of soil sterilants, Mr. Fellman said some soil sterilants are more soluble than others and could be washed away by rain and melting snow. His opinion is that it would be better to apply these chemicals in the spring and thus avoid the necessity for having heavier fall dosages.

● When Spilled Grain Sprouts

J. J. Laudig, research engineer, Lackawanna, said he had noticed that, even after weeds have been killed, spilled grain will sprout a growth that makes the roadway look like a green carpet. Rockwell Smith, roadway engineer, AAR, said that a light application of a contact spray would take care of this growth.

Mr. Johnson said that the Soo Line, being a grain-hauling road, also had trouble with sprouting grain. It was this road's practice, he said, to make an inspection of the track to pick out the worst spots and then to make a light application of aromatic oil. Mr. Jackson said that the Illinois Central also had a problem with grain growth in their yards. Application of "Telvar" DW weed killer at the rate of from 5 to 10 lb per acre, he said, was providing excellent results.

W. M. S. Dunn, staff engineer, C & O, reported that his system was divided into five geographical areas and five contractors were invited to bid on the weed-control program. Four contractors did the work and the results were satisfactory.

He also stated that he was having difficulty in identifying the chemicals with their trade names and he felt there was a crying need for a better understanding of these compounds. Mr. Parris said that the Weed Society of America is preparing a statement showing the various trade names. When it is available, he said, he plans on publishing it, and also a chart of the expected annual rainfall, in a forthcoming AREA bulletin.

Dr. Janes referred to the pictures slides which had been shown of brush-control work and said he had noticed that some of the conifers were not killed. Mr. Quarles said that conifers showed various reactions to 2,4.5-T and Ammate. If moisture conditions are right, he said, good results will be obtained in killing pines. Rockwell Smith said he thought that basal sprays would kill pines easily.

UNDERGROUND CREEK flows beneath the tracks of a new yard under construction on the St. Louis-San Francisco near Memphis, Tenn. The stream, which formerly flowed through the site of the classification tracks, is now enclosed in seven lines of 114-in diameter Armco Multi-Plate pipe. Each line of pipe is 1,208 ft in length. After the pipes were assembled, installed and partially backfilled, the stream was diverted through them and the old channel filled in.

CLOSE QUARTERS were no problem for this Warner & Swasey Gradall which had a rather unusual excavating job at the Great Western's depot at Des Moines, Iowa. The work entailed the removal of a concrete slab and excavation to a 10-ft depth to repair the wall at the footing level.

News Briefs in Pictures . . .

LONGEST conveyor system in the U.S. is in operation at Great Salt Lake in Utah where the SP is building a solid fill embankment across the lake to replace the present trestle. Long conveyor in background runs for two miles; shorter belt . . .

. . . **LOADS BARGES**, which carry the material out into the lake and deposit it in a trench dredged in the lake bed. The project is expected to cost $49 million. The major portion of the work is being done by Morrison-Knudsen, Boise, Ida.

WHAT'S THE ANSWER? . . .

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Aluminum Vs. Galvanized Gutters

Is the use of aluminum gutters and downspouts justified on railway buildings in spite of their higher initial cost? Why? Explain.

Justified Despite Cost

By W. G. HARDING
Architect, Wabash, St. Louis, Mo.

The use of aluminum gutters and downspouts is justified on railway buildings in spite of the fact that their initial cost is approximately 25 per cent greater than commonly used material.

Its resistance to corrosion and consequent long life and low-maintenance cost has lead to its wide spread use especially in industrial areas. Most commonly used metals, when exposed to the corrosive fumes usually present in such areas, require protective coatings that must be periodically renewed. Aluminum requires no such coatings except in extreme cases.

Near the seacoast, where used in locations subject to salt spray, it will show signs of oxidation; however, this does not weaken the material structurally.

The use of aluminum offers a means of brightening up the exterior of the structures and at the same time taking advantage of the structural properties of the decorative material.

Justified by Longer Life

By P. C. EGART
Building Products Division, Reynolds Metals Company, Richmond, Va.

Regarding the cost of aluminum as versus galvanized, it is true that the per-foot price of aluminum trough is generally considerably higher than the per-foot of galvanized through. However, when all of the accessories that make up a complete job are considered, the over-all difference between an aluminum job versus a galvanized job is seldom more than the cost of painting the galvanized guttering after installation — and, of course, the aluminum rain-carrying equipment does not require painting. In addition, when one considers the cost of repainting galvanized spouting every two to three years, and the additional maintenance that might result from rust-stained facias, the cost of an aluminum installation will usually prove considerably more economical over the life expectancy of the installation.

The features of aluminum guttering, the methods of installation, etc., are essentially the same whether the application is industrial or residential. Our aluminum rain-carrying equipment is available in two types, either half round or ogee. Ogee gutter is frequently referred to in the galvanized industry as Style "K." The eavestrough is available in either 4-in, 5-in, or 6-in sizes and the downspouting is available proportionately. Our rain-carrying equipment is formed of a special alloy developed for this specific usage. It is highly corrosive resistant and is not affected by leaf acids or other corrosive conditions.

Cost Offset by Savings

By GILBERT B. HAUSER
Chief Railroad Engineer, Development Division, Aluminum Company of America, New Kensington, Pa.

When giving consideration to the various metals available for a gutter and downspout installation on a railway building, aluminum certainly is worth careful consideration. An aluminum installation would undoubtedly cost less than one made of other long-lived metals such as Monel metal, stainless steel or copper. Its first cost would probably be somewhat higher than that of galvanized steel, but in nearly all cases any additional cost at the time of installation should be offset after a few years by virtue of the fact that little, if any, maintenance of the aluminum would be required.

After a higher first cost is thus offset, increasing dollars-and-cents

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Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered In the May Issue

1. When unloading ties from cars, is it preferable to unload them lengthwise or endwise? When unloading ties on an embankment, what precautions can be taken to prevent the ties from rolling or sliding down the slope? Explain.

2. In view of the high wages presently being paid carpenters, electricians, and other building craftsmen in home and industrial construction work, what means can be used to obtain high-caliber men for employment in railroad b&b gangs? Explain.

3. Many manufacturers of m/w machines are following the practice of holding demonstrations of their equipment in operation. What value do you place on such demonstrations? Can they be made of greater value to you? Explain.

4. What factors determine whether to use commercially "ready-mixed" concrete or concrete mixed at the site by b&b forces? Can the desired control be exercised over the physical properties of commercially prepared concrete? Explain.

5. What methods can be used to remove oil from ground which has been saturated at lubricating and fueling facilities? What other means can be used to correct such conditions? Explain.

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savings should be realized with the passage of time due to the long service life which would be expected of an aluminum installation, coupled with the need for so little, if any, maintenance. Also, aluminum has a great resistance to the highly corrosive effects of sulfurous fumes and other detrimental factors generally associated with railroad environments.

Take Care in Installation

By Joseph A. Jorlett
Engineer Structures, Pennsylvania
Baltimore, Md.

Normally, one thinks of aluminum gutters and downspouts as costing about twice as much for material as for a good grade of galvanized steel. If the materials are bought so as to be erected mechanically instead of soldered then the labor costs of erection are about equal. Usually the galvanized steel installation will be given one coat of metal primer paint and one or two coats of a good metal gutter paint. Aluminum is generally left unpainted.

Where the quantity of guttering and spouting is small, as for numerous railroad buildings, the cost of labor for mobilizing and erecting the material will close the gap between the cost of an aluminum installation of that of a galvanized-iron material. When large buildings such as freight stations, shops, station platform shelters and the like are to be fitted, careful consideration must be given to the comparative costs. Good alloyed-iron materials properly painted have given many years of service in some locations.

If aluminum is selected for the job, it is important that the proper alloy be specified for the location and the service to be expected. Test specimens have been under observation for over 20 years by the Aluminum Company of America. The locations have been in a seacoast atmosphere and an industrial atmosphere. The penetration depth of atmosphere attack has averaged less than six mils on materials that were 64 mils thick.

Under the test conditions and in most atmospheres, some oxidation of the bright metallic surface will occur and the sheen will be diminished but this will not detract from the structural integrity of the material.

The galvanic action induced by dissimilar materials will destroy aluminum prematurely. In the past this has caused failures which were not properly identified. To overcome this certain precautions are necessary. Where the aluminum will come in contact with dissimilar metals imcompatible with aluminum, paint the dissimilar metal with a primer, followed by one or two coats of aluminum metal-and-masonry paint or other suitable protective coating, excluding those containing lead pigmentation. Or, paint the dissimilar metal with a coating of a heavy-bodied bituminous paint. A good quality caulking material, placed between the aluminum and the dissimilar metal, will also work. Other separatives are non-absorptive tape or gasket materials. Steel anchors and connecting members may be hot-dipped galvanized or zinc plated.

Other precautions to be observed include: The painting of dissimilar metals where drainage from them will pass over the aluminum; painting of aluminum surfaces in contact with lime mortar, concrete or other masonry materials with alkali-resistant coatings, such as heavy-bodied bituminous paint or water-white methacrylate lacquer; painting with heavy-bodied bituminous paint, or several coats of aluminum metal-and-masonry paint, those aluminum materials coming in contact with wood or other absorptive materials which may become repeatedly wet; and the use of this same treatment when the aluminum is in contact with treated wood, such as pentachlorophenol, 5 per cent minimum concentration, Wolman Salts, creosote or zinc naphanate.

Extinguishers for Trestle Fires

To what extent are commercial fire extinguishers useful in putting out fires on timber trestles? What types are most effective? Where should they be kept when not in use?

Pump Type Applicable

By R. S. James
Superintendent of Safety and Fire Prevention, Denver & Rio Grande Western, Denver, Colo.

We have found that only the pump-type water extinguisher is of any value on timber trestles on our line. None of the other types are of sufficient quantity to furnish for this use without an exorbitant investment.

The extinguishers are usually located at one end or the other of the bridge or trestle.

They have one drawback in that they have to be constantly checked to see that they are filled or refilled after they have been used. Further, they must be watched carefully and supplied with the proper anti-freeze solution for winter conditions.

Extinguishers Not Practical

By R. M. Bostick
Superintendent Fire Prevention, Illinois Central, Chicago

Our standard fire protection on bridges consists of water barrels which in some cases are protected from vandal's shots by encasing them in sand in an exterior container. For bridges without full-time watchman service, a commercial extinguisher could not be maintained.

Recommend 5-Gal Pump Tank

By R. F. Poole
District Manager, Pyrene C-O-Two Company, Rocky River, Ohio

The common and standard practice of most railroads in using rain-barrels and buckets for timber trestle protection presents a constant problem of application, in that the applicator has little control over the direction or quantity of water being applied through the medium of a bucket.

As specialists in recommending first-aid fire equipment and establishing fire-training programs with various railroads throughout the country, we believe the Pyrene 5-gal pump tank, with its double-action pump supplying a steady

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What's the Answer? (Cont'd)

45-ft stream of water, enables the operator to safely apply and control the stream to the fire source. Where freezing temperatures are involved, an anti-freeze charge is available to protect the water against freezing to 40 deg below zero. A filled rainbarrel (which also can be protected against freezing) is also recommended as reserve source of supply in the event the 5-gal charge is insufficient.

Aside from being the ideal extinguisher for wood and tumbleweed fires, the pump tank, by comparison price-wise with other types of extinguishers, is relatively inexpensive to maintain and operate.

One or two units should be assigned to each bridge, tool shed or section shanty and should be readily accessible to the track maintenance man or foreman. Generally speaking, we recommend locating rainbarrels at trestles and pump tanks at section houses due to the theft problem.

Chlorinating Small Water Supplies

What is the most practical method for chlorinating small supplies of water such as from wells and cisterns which serve section houses, etc.? Explain.

Various Devices Available

By E. L. E. Zahm
Water Engineer, Missouri-Kansas-Texas, Parsons, Kan.

Wells and cisterns should be properly designed and located to avoid contamination from surrounding areas in order to minimize treatment requirements. Such supplies may be sterilized by the addition of chlorine compounds which are available in the form of solutions containing definite amounts of available chlorine or the necessary solution may be prepared from dry compounds. An excess of chlorine is calculated to satisfy the chlorine demand of the water and afford a residual of several parts per million.

Bacteriological examination should be made subsequently to determine if the water is safe for drinking and culinary purposes. If not, the chlorination should be repeated. Samples should then be examined at regular intervals and chlorination handled as required. If the water requires continuous sterilization, the volume will determine the most practical method of chlorination.

A number of simple devices are available for feeding chlorine compounds in definite amounts. Tablets or solutions may be used in this type of equipment. Small amounts of water may be sterilized as drawn from the well or cistern for use by adding the prescribed amount of hypochlorite in tablet form. In some cases it is desirable to provide local forces with chlorine comparators to determine the effectiveness of the treatment and insure proper results.

Such water supplies should be under the supervision of competent technical personnel, who are qualified to prescribe treatment and control.

Reuse of Removed Ties

How many years of service life should remain in those ties which are removed from track in a "cycled" tie-renewal program and reused in secondary tracks? What effect does the length of the tie-renewal cycle have upon the percentage of reusable ties? Explain.

Eight to Twelve Years

By A. B. Chaney
Engineer Maintenance of Way, Missouri Pacific, St. Louis, Mo.

Crossties removed in a "cycled" renewal program and re-used in secondary or other permanent tracks should give a service life value at least equal to the labor cost of handling and re-applying in such tracks. This will vary from eight to twelve years in this territory.

As a rule, ties will give a longer service life in their original location and this is one reason why tie-renewal cycles greater than two or three years result in the loss of considerable tie life and will seldom be a sound economical practice. It usually costs more to apply a used tie than it does to insert a new one.

In inspecting ties for renewal, the roadmaster, supervisor or foreman should mark for renewal such ties, and only such ties, that he, as a prudent and experienced maintenance man would renew on date of inspection if he were on the ground that day with men and ties making the renewals.

Depends Upon Length of Cycle

By T. M. von Sprecken
Assistant to Chief Engineer, Southern, Washington, D. C.

The service life of ties removed from track in cycled programs will vary from nothing to something more than the cycle. For instance, for the five-year cycle the idea is to remove all ties which will fail within the next five years. The ties removed will have a remaining service life running from zero to something over five years. This is because there will always be some errors in judgment as to the life remaining in a tie.

It is relatively easy to inspect ties and pick out those which have no service value left, but it is very difficult to examine a tie and determine that its service life will end at some predetermined time, say three, four, five or six years hence. The further one tries to predict the future the more inaccurate the prediction becomes. Also, there is always a tendency among those responsible for the condition of the track, when making an inspection, to make sure that very few ties will be left in the track to go bad before the end of the cycle.

If the cycled period is, say, five years, *and the selections were perfect*, the average remaining service life would theoretically be two and one-half years under the same service conditions. Due to inspection errors and the tendencies men-

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tioned, the actual service life would probably be closer to three and one-half or four years under the same conditions of traffic, weathering, etc.

There will always be some ties which have completed their service lives and are too bad for reuse. After culling out the ones unsuitable for reuse in any track, the remainder will probably give from six to ten years average service in secondary tracks where conditions due to traffic are much easier on the ties and where the standard of maintenance is lower.

As there always will be about the same number of ties which will be unsuitable for reuse in any track, it follows that the longer the cycled period, the greater will be the proportion of ties suitable for reuse. It also follows that these ties will have a longer average service life in their new location.

Cycled maintenance is relatively new, and actual experience with it is not sufficient to exactly evaluate all factors. The economy of the reuse of ties released is dependent on low unit cost of releasing, handling and re-inserting the ties in their new location. This in turn requires mechanical processes with low labor cost. Fortunately these conditions can be met under present-day conditions.

Can Reuse 75 Per Cent

By W. E. Chapman
Superintendent Maintenance,
Central of Georgia, Savannah, Ga.

In a "cycled" tie-renewal program, all ties should be removed that would not be good until the next tie-renewal period. If a five-year cycle is used, all ties that will not be good for five years should be removed.

Generally, there are about 25 per cent of the ties removed that would not be suitable to reuse in secondary tracks or yard tracks regardless of the length of the renewal cycle.

When the cost of replacing and reusing secondhand ties is kept to a minimum of say 25 to 50 cents per tie, most, or some 75 per cent of the ties removed can be reused economically.

As the series of cycles progress, the timber renewals become lighter and most of the ties removed can be reused economically.

This program, of course, depends on standards of individual carriers and the cost of renewals; it also depends upon the inspections given those ties marked for replacement, since timber inspection is not an exact science.

Stabilization — Which Type?

What factors determine the type of roadbed stabilization—grouting, pole driving, subsurface drainage, etc.—that will be most effective and economical at a particular location? Explain.

Conditions Vary; So Do Remedies

By G. B. McClellen
General Roadmaster, Texas & Pacific,
Fort Worth, Texas

Where the trouble is caused simply by ballast sinking into a fill and forming water pockets, grouting is quite effective if the ballast pockets are deep enough to absorb a substantial volume of the impervious grouting slurry. A thin layer of grout may break through and permit the ballast pocketing to progress below the sheet of grout.

Where the trouble is caused by a layer of clay within three or four feet below the ties, and this sheet of clay is "heaved" up on top of the berm, the driving of 8-ft poles just outside of the ends of the ties on 1½-ft centers is a simple and quite effective remedy.

This writer has had perfect results from driving 8-ft poles in such surface heaves on a high fill.

Where the trouble is due to hillside seep water, drainage is obviously the remedy.

In cuts, where the location precludes the feasibility of drainage by open ditching, lateral lines of loose-jointed clay pipe embedded in washed gravel or crushed rock filled up to the ballast bed, and with these laterals tee-ed into parallel lines under the backs of the trackside ditches, have been found to be quite effective; however, this is quite an involved, costly operation, and the track will require several spottings on the columns of loose rock over the laterals.

Where the entire roadbed is composed of soft, yielding material to a great depth, sand-pile treatment will give excellent results at a fraction of the cost of excavating and refilling with stable material.

The holes for sand piles are made by driving a hollow steel "spud," or an armored wooden spud, tapered from 12 in by 12 in to 10 in by 10 in, and preferably lubricated to facilitate pulling.

The depth to which is should be driven, and also the density or closeness of the pattern, depend upon the depth and degree of instability of the ground.

A depth of eight feet and a pattern of as much as 84 "piles" per 39-ft rail length may be necessary in deep alluvial soil, where the berm is not more than 3 or 4 ft above surrounding ground. This will require about 6 cu ft of sand per hole, to fill up to subgrade. This operation raises the track slightly. Stabilization is accomplished by the resulting compaction and bearing on the "piles."

Depends on Moisture Present

By J. R. Rushmer
Roadway Engineer, Santa Fe,
Amarillo, Tex.

Unstable roadbed is of many types all of which result in excessive maintenance to insure safe and good riding track. Roadbed constructed of material high in clay, adobe and similar materials, which are greatly affected by their moisture content, probably makes up the greatest mileage of unstable roadbed. In areas of low to medium rainfall, such roadbeds can be easily and economically stablized by pressure grouting with lean mixes. Roadbeds constructed of such materials in high-rainfall and poorly drained areas are good candidates for pole driving, which is cheaply done in such localities because of easy driving. Hard driving is expensive and slow and may result in too shallow penetration to be effective. One of the worst combinations causing instability is poor soils with considerable vegetable matter such as peat, tules, etc. In some examples of this kind, pole driving, retaining walls, and piles driven and cabled

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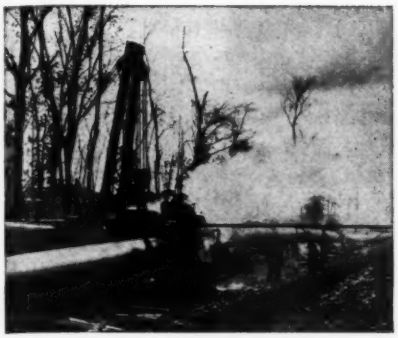

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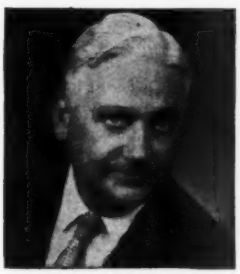

W. F. Fair, Jr.
Corrosion Consultant

The two most recent reports in this monthly series have stressed the importance of good surface preparation and described methods used to clean metal surfaces prior to the application of protective coating systems. This report describes an experiment, conducted under service conditions, which illustrates striking differences in coating performance due solely to differences in surface preparation.

* * *

In 1952 speculation arose concerning the contribution of wash primer surface conditioners and of inhibitory pigmented primers, when used with coal tar coating systems. Dr. Joseph Bigos of the Steel Structures Painting Council, and editor of the Steel Structures Painting Manual, participated in the discussions, giving freely of his time and experience.

When it was decided to subject certain typical protective coating systems to an environment of known high corrosivity, two areas in the Koppers Coke Plant at Kearny, N. J., were selected. The location of this plant on tide water, fumes and "coke breeze" from adjacent ovens, saline condensation from the coke quenching, and seasonal temperature shocks assured rugged testing conditions.

The areas tested were an actifier tower and three oxide box tops, totaling nearly 5,000 sq. ft. of steel surface. Fourteen coating systems were applied in duplicate 2-foot-wide strips on the vertical actifier tower, after thorough sandblasting. Of the flat box top areas, half were cleaned by sandblasting and half by power wirebrushing, and the same fourteen coatings were applied on both of these differently cleaned areas.

Primers used were a conventional coal tar cutback, three wash primers, two epoxy red leads, two phenolics, four special proprietary formulations, and three experimental coal tar solutions. Barrier coats over primers were Bitumastic® No. 50, Bitumastic Super Service Black, and Bituplastic® No. 28. For comparison, unprimed sections received the same coatings. Bituplastic No. 28 was used to topcoat all areas.

* * *

At the end of only one year, all systems on the wire-brushed areas—both primed and unprimed—had blistered and soon showed universal disbonding. After two years, disbonding and undercutting on these areas had caused complete coating failure. Now, after more than three years, all the coating systems on the sandblasted areas—both primed and unprimed—are in perfect condition and show no signs of deterioration.

In such severe corrosion environments, it is obviously futile to consider any but the best surface preparation. Also, it must be concluded that priming cannot compensate for incomplete metal cleaning.

* * *

Our Technical Department makes semi-annual inspections of this continuing test. We'll be glad to notify you of these inspection tours if you would like to be present. Write Koppers Company, Inc., 1301 Koppers Building, Dept. 116B, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Ala. In Canada: Koppers Products, Ltd., Toronto, Ontario and Edmonton, Alberta.

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together under ties have only partially cured the trouble, the final stabilization being done by grouting.

Subsurface drainage, except in intertrack space, generally does not completely stabilize roadbed, and is short lived even when it is effective because of the movement of the roadbed and filling up with trash. Cases of slides in embankment or in natural ground (which are often due to actual flow of water) have, in some instances, been relieved by drilling wells which are pumped constantly or at intervals; in other cases relief is gained by flattening slopes through extensive grading.

Exploration in unstable material is generally difficult and expensive, and sometimes the exploratory work prevents immediate stabilization—especially when it is done by excavating test holes or trenching. Considerable information can be gained by driving long grout-injection pipes, and pumping water into the roadbed, or out of the roadbed if considerable water is present.

The fact that many roadbeds have been built on natural soil that was unstable in its original, undisturbed state should not be overlooked. In such cases grouting into natural ground has been very effective. Pole or pile driving is also satisfactory where the natural ground is very wet.

Make Careful Study

By F. H. McKenney

Engineer of Track, Chicago, Burlington, & Quincy, Chicago

In determining what type of roadbed stabilization will be most effective and economical, a study must be made of the problem at each location. Where surface indications or the general location do not suggest the proper method, borings should be made with an earth auger and a log made of various layers of material found and moisture conditions.

In embankments, borings are frequently put down 20 to 30 ft and deeper if necessary to whatever depth the auger will operate.

If springs are encountered in a cut, it is probable that an intercepting ditch with a tile drain will cut off and dispose of the water. If water pockets are located in an embankment, sometimes they may be drained by putting in horizontal auger holes and backfilling them with rock or gravel. If not accessible for draining, then perhaps grouting should be considered to displace the water and dry up the pockets.

On river bottoms or ground where the soil is not capable of carrying the load of the track without soft spots and squeezes, grouting has been very successful. If in a timber country where poles 8 or 10 feet in length can be secured cheaply, pole driving might be the most economical method of strengthening the roadbed to carry the load.

Gumbo soils dry out and shrink leaving cracks in the roadbed into which the ballast falls causing rough track. Wet gumbo may swell and squeeze, permitting soft spots to develop. It is sometimes impossible to drain such soils as there may be no free water but just enough moisture to make the clay or gumbo plastic so that it flows under load. In such locations tile drains may be entirely ineffective. Grouting is usually successful as the grout fills the cracks and is forced through the softer material, giving friction resistance to the sliding particles or layers.

The method or combination of methods which will be most economical and likely to effect a lasting stabilization can only be determined by securing all the data as to kinds of soil, conditions of moisture, drainage, soundings, and making a careful study of these factors.

For further information, the 1956 Proceedings of the Roadmasters and Maintenance of Way Association has a report on Roadway Stabilization submitted by the committee on roadway.

Drive Poles in Emergencies Only

By J. B. Farris

Assistant Engineer, Southern, Cincinnati, Ohio

The factors determining the type of roadbed stabilization that will be most effective and economical at a particular location are the character and disposition of ballast and soils in the unstable location, the relative position of ground or surface water that may contribute to instability, and the probable effectiveness of the treatments available.

Unstable roadbed is usually the result of shearing failure in the supporting soil. The practice of reducing the load on the soil to correct shear failure is seldom applicable to railroad problems. Therefore, it becomes necessary to consider methods of strengthening the subgrade support.

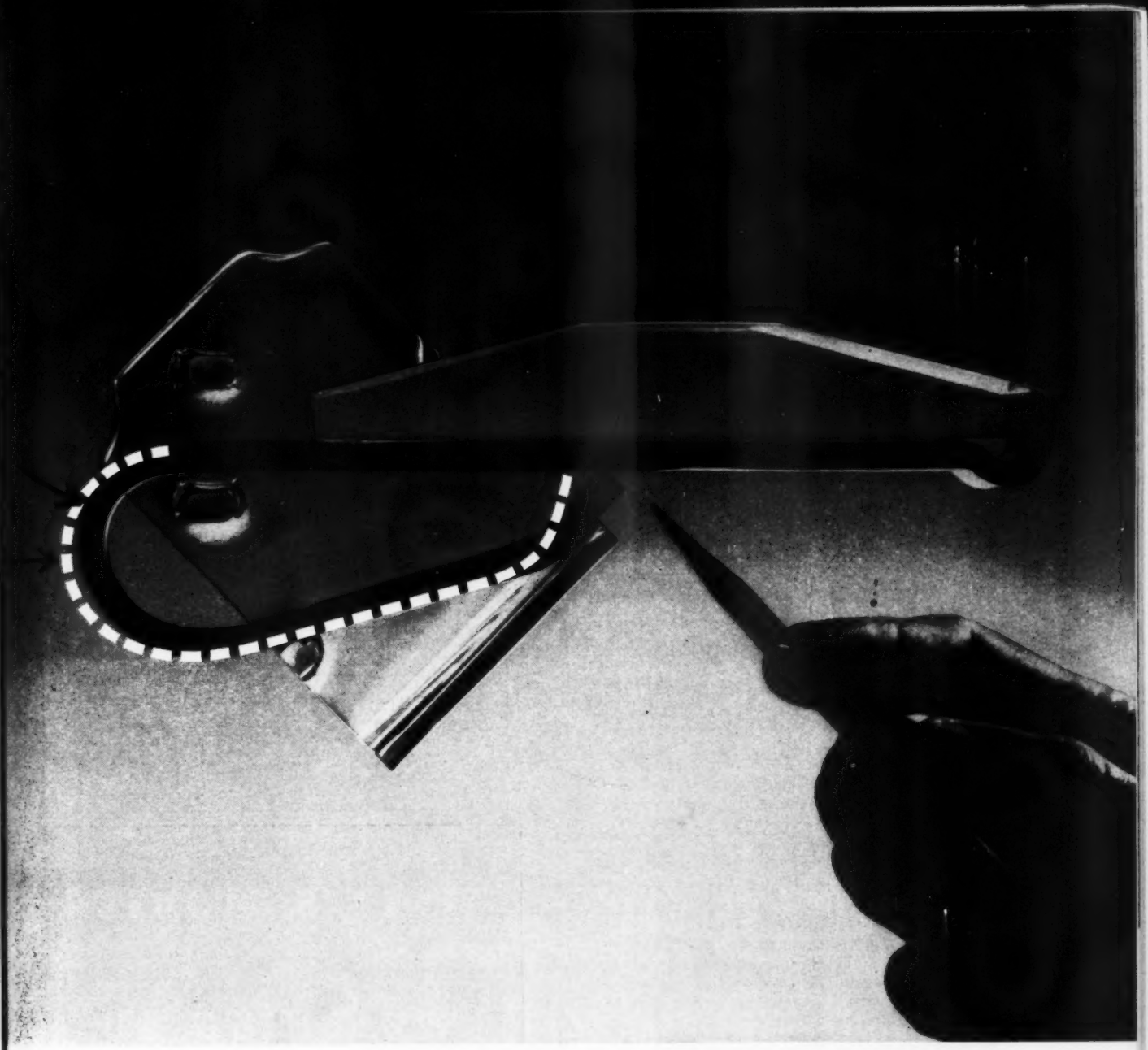
Tie and pole driving, sand-filled spud holes, and similar methods that act to tighten and reinforce the supporting soil, appear to be most successful in cuts and on very low fills where deep ballast pockets do not exist, and excessive ground water immediately below the ballast is not present. Usually, all types of soils respond to such treatment.

The use of deep ditches through cuts and along very low fills to lower the water table has given beneficial results in most soils. The use of subsurface drainage, where properly applied in water bearing strata to draw down the water table, gives excellent results. To obtain long-term benefits, properly graded filters should be used. Installation of subsurface drainage systems in impervious soils is of doubtful value.

In instances of obvious slope failure due to the steepness of fill slopes, the widening of the fill with lighter slopes provides the desired correction. The presence of deep ballast pockets in fills of impervious soil may not respond to such treatment, and, in certain instances, has been known to accentuate the unstable condition. Using subsurface drainage with filters in such pockets may provide a short term remedy which usually requires treatment by grouting at a later date.

Grouting appears to provide a positive correction to most silt and clay soils having deep ballast pockets, to certain unstable sandy soils, to slides in embankments and, in certain cases, corrects failures in natural soils below embankments and side hill slides.

Driving unstable fills with piling seldom results in complete stabilization of the fill. The severity of the unstable condition is reduced, and when pilings are tied together under the tracks, the tendency of the track to get out of line is greatly reduced, but subsidence continues. The use of piling should be limited to emergencies only, and, at an opportune time, other corrective treatment should be applied. In this connection, the partial remedy lasts only as long as the piles.



NEW BULLDOG CUTS INSTALLATION TIME IN HALF

Broad, Flat Tie-Bearing Surface and 25% Greater Holding Power Features Retained

Now, it takes one or two hammer blows to install a new BULLDOG rail anchor . . . half the previous time and effort.

To accomplish this significant time and cost savings for rail anchor users, True Temper engineers have reshaped BULLDOG'S anchor spring, as shown.

First, the loop in the spring has been flattened. This raises the point (A) where the hammer strikes the spring and results in a straighter, more direct path between the striking point and the end of the spring which engages the rail flange. Old design (dotted white line) allowed much of the striking force (B) to travel down and around the wider loop.

Next, the new design allows the spring to move within the clamp with less friction, and is angled to "ride" over clamp base (at point indicated by pencil) thus minimizing "pop back" during installation.

With less pounding needed for installation, the new BULLDOG will not only last longer but install more accurately.

Why not see for yourself how fast, easily, accurately BULLDOG anchors can be installed? Contact your True Temper representative now for a short, convincing demonstration. True Temper Corporation, Railway Appliances Division, 1623 Euclid Avenue, Cleveland 15, Ohio.

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BULLDOG Ballast Forks, Weed Cutters, BULLDOG Shovels, BULLDOG Safety Rail Forks, Hammers, Sledges, BULLDOG Scythes.

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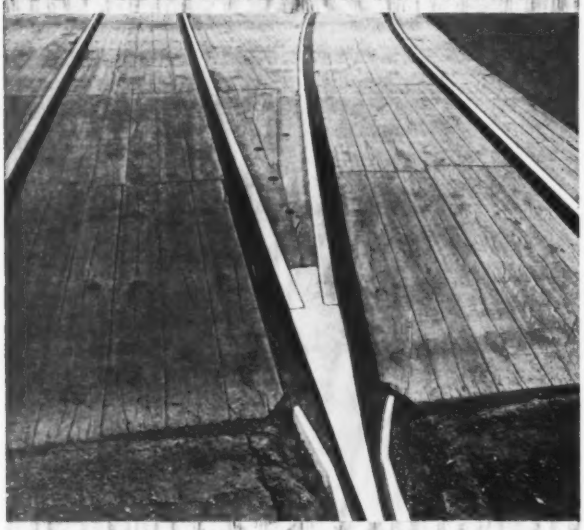
BULLDOG RAIL ANCHORS

YOU CAN LOOK TO TT FOR LEADERSHIP

CUT MAINTENANCE COSTS



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GREATER STRENGTH . . .
The interlocking grain of this toughest of hardwoods ruggedly resists heavy, pounding vehicular and railroad traffic. Slabs now securely tied together with four through-bolts, also lock nuts that won't back off.

LONGER DURABILITY . . .
No heaving or spalling due to freezing and thawing, no potholes from heavy impact. Many Moss Crossings giving smooth, trouble-free service after 15 and more years.

MORE VERSATILITY . . .
Tailored to your specifications to fit any angle or curve, single or multiple track; no cutting or fitting on the job. Sectional construction makes installation simple and quick, relocation easy.

GREATER ECONOMY . . .
All this adds up to maximum satisfaction at minimum cost . . . no big capital expenditure, and minimum annual maintenance.

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WOOD PRESERVING PLANTS: *E. St. Louis, Ill. Granville, Wis. • Shreveport, La. • Columbus, Miss.*

INCREASE SAFETY OF OPERATIONS BY USE OF Q AND C DERAILS

Install Q and C Derails at clearance points to help guard against interruptions in service on your principal tracks. Hand Throw, Sliding or Portable Types are available, all adjustable for a range of rail sizes, which eliminates waste of adzing or shimming of ties, also reduces inventory.

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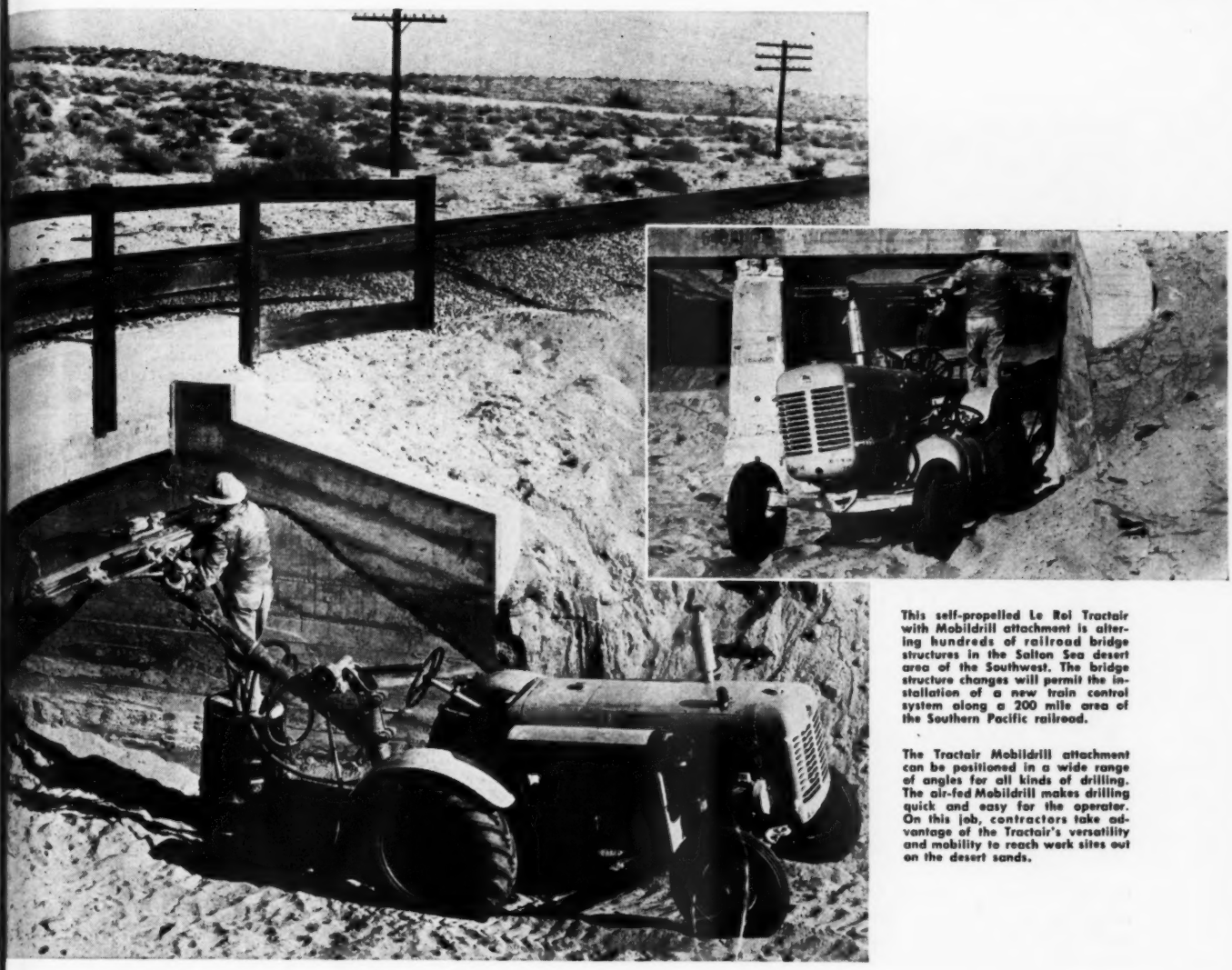


This self-propelled Le Roi Tractair with Mobildrill attachment is altering hundreds of railroad bridge structures in the Salton Sea desert area of the Southwest. The bridge structure changes will permit the installation of a new train control system along a 200 mile area of the Southern Pacific railroad.

The Tractair Mobildrill attachment can be positioned in a wide range of angles for all kinds of drilling. The air-fed Mobildrill makes drilling quick and easy for the operator. On this job, contractors take advantage of the Tractair's versatility and mobility to reach work sites out on the desert sands.

How Railroad Uses Tractor-Compressor to Lick 200-mile Job in Desert Sands

Drilling rig mounted on combination unit, speeds from one working location to another.

Le Roi Tractair mobility not hindered by the dry, loose sand.

On the job, Mobildrill swings easy, gets into tight corners, saving hours in weekly drilling time.

Shifting sands of the desert pile up some equipment problems on the new train-control system project now under way between Colton, California and Yuma, Arizona.

The T. M. Page Corp., subcontractor on the 200-mile project says, "We found an answer in the Le Roi Tractair. It's one machine able to crawl through this very loose, dry sand under its own power. It's versatile. Most of the other machines need a crawler tractor to get them in and out of the work sites."

The Tractair with its air-fed Le Roi-Cleveland Mobildrill attachment is drilling hundreds of concrete supports for alteration of bridge structures. The Mobildrill makes drilling easy for the operator, as it can be swung to a variety of angles for all kinds of drilling.

Because Tractair is a combination 125-cfm air compressor and a 42-hp wheel tractor in one self-contained unit, it can be equipped with a wide variety of attachments. These include a front-end loader or a backhoe, plus dozens of accessories and air tools for most any need.

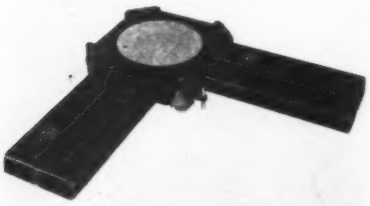
Three other Le Roi compressors are used on the project. "Perfect" service for all four Le Roi machines is provided by the distributor, according to the contractors. All of the Le Roi units work 8 to 9 hours each day in the hot climate.

T-52

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Cleveland air tools, Tractair, portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

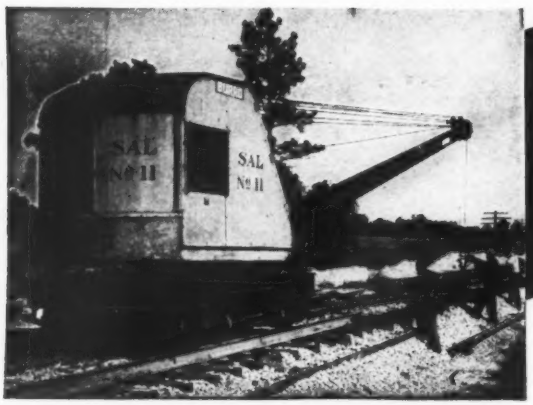
PRODUCTS OF MANUFACTURERS . . .

. . . new, improved equipment, materials, devices

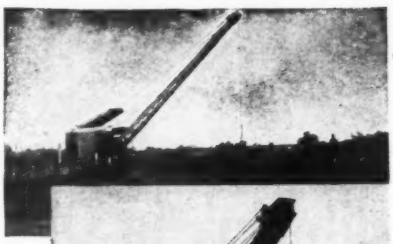


UNDERFLOOR WIRING DUCT FOR OLDER BUILDINGS

A RECENT addition to the manufacturer's underfloor wiring system is a flush raceway system to be used primarily for modernizing existing buildings. Known as Flushduct, the raceway is installed by trenching the existing floor so the ducts can be installed flush with the floor surface. Linoleum or other top surface materials are then laid directly over the duct system. The ducts are furnished in 10-ft lengths with outlets spaced every 24 in along the duct and with each outlet closed by means of a brass cover plate. Flushduct is available in single, two and three-duct systems. Set screws hold the duct assemblies together and provide positive electrical grounding continuity. *National Electric Products Corporation, Dept. RTS, Gateway Center, Pittsburgh, Pa.*



We call Burro Cranes "Railroad Specialists" because they do so many railroad jobs so well. Track work, bridge work, bulk materials handling, Mechanical Stores Department, material handling with or without magnet, are only a few jobs Burro does with speed and economy. Burro Cranes are designed for railroad work—not adapted to it. Watch a Burro work and see why it's called on to do so many jobs by most of the country's railroads.

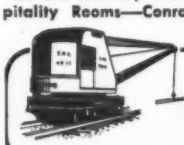


Only BURRO CRANES HAVE:

- Fast travel speeds—up to 22 M.P.H.
- Draw Bar Pull of 7500 lbs. (often eliminates need for work train or locomotive).
- Elevated Boom Heels for working over high sided gondolas.
- Short tail swing—will not foul adjoining track.
- Low overall height—Burro can be loaded and worked on a standard flat car.

You are cordially invited to drop in at the Cullen-Friestedt Hospitality Rooms—Conrad Hilton Hotel, during the conventions.

Write for Bulletins on Burro Cranes



CULLEN-FRIESTEDT CO.

1301 SOUTH KILBOURN AVENUE • CHICAGO 23, ILLINOIS

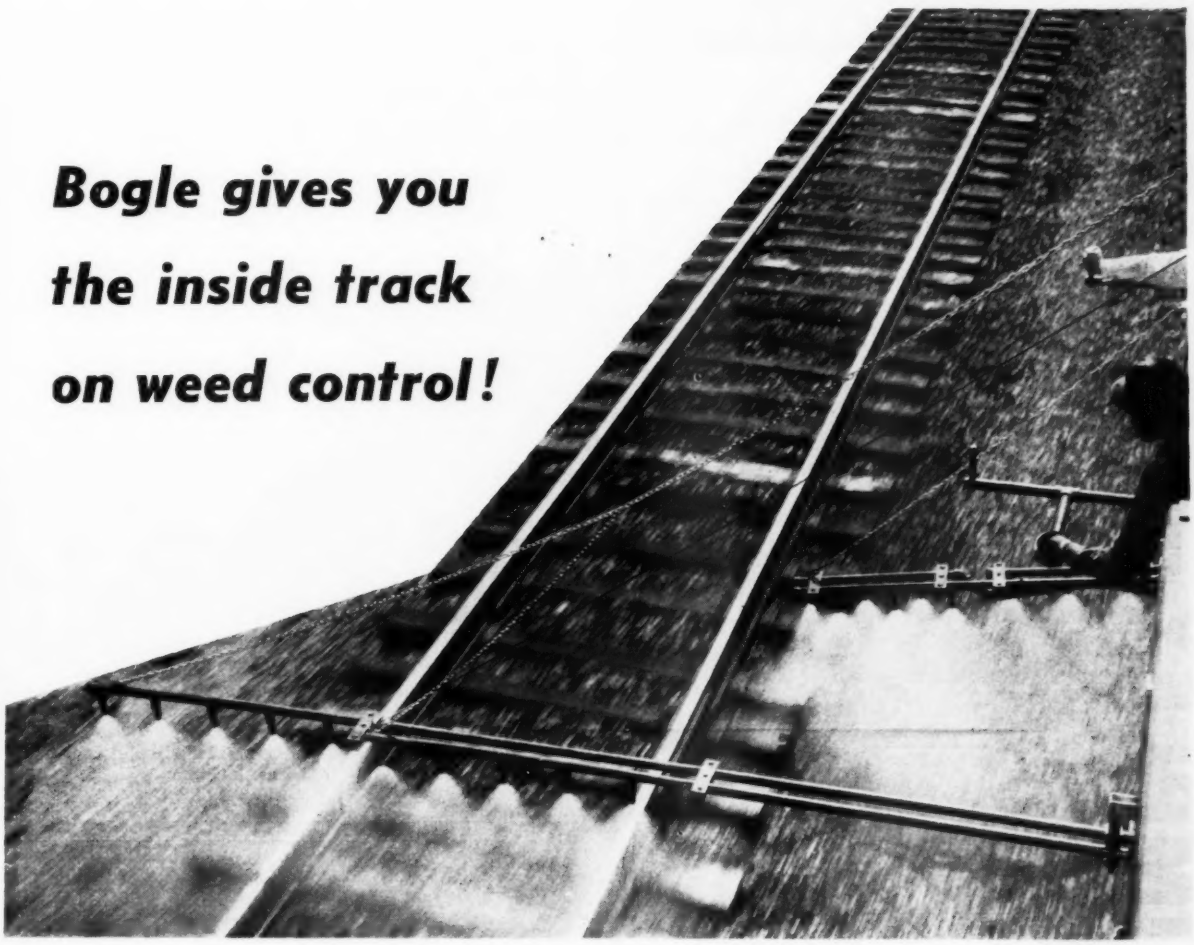
FOUNDATION PILE FROM RAIL SECTIONS

A NEW TYPE of foundation pile, said to have exceptional strength characteristics, especially during driving, has recently been introduced. The pile, called Rail Pile, is made from three steel rail sections welded together at their base edges to form, in cross section, a hollow equilateral triangle with rail heads extending outward at 120-deg angles from each other. This design takes advantage of the high tensile, yield and compressive strengths of rail steel.

The shape gives the pile a generally symmetrical section so that its section modulus is approximately the same around any axis. Thus the rail pile effectively resists forces from any direction. The heaviest concentration of metal in the pile is at the rail heads, which

(Continued on page 56)

Bogle gives you the inside track on weed control!



We are proud of our 32 years of railroad service, of our specially engineered equipment and highly trained personnel.

Maintenance engineers want results. They demand proof of better roadbed maintenance that offers long range savings. And only Bogle's continued "on-track" research guarantees such seeing-is-believing, low-cost benefits. We'll be happy to give you the findings as they are specifically applied to your own road's requirements.

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GET IN THE GROOVE!

WORLD'S MOST DEPENDABLE... SIMPLEX TRACK JACKS

Featuring non-slip double grooved toes for lining without digging!

- Most complete line — twelve models
- Available with malleable or aluminum alloy housings
- Large area (2½" x 3¼") lifting toe has non-slip grooves
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WORLD'S LARGEST MFGRS. OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS

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There's more to Economy than a price tag!

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Quality Durability Efficiency

The **IMPROVED GAUTIER Rail Anchor** is made of tough, durable Alloy Spring Steel. The improved GAUTIER can be used again and again on new or old rail. The improved GAUTIER is engineered so that it can't be overdriven.

When you are in the market for rail anchors, may we suggest you look further than the price tag—look to GAUTIER—for real economy.

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FOR POSITIVE LOCK USE

Lewis LOKTITE NUTS

Made of uniform quality nut steel to equal tensile strength of bolt.

Side view, reduced.

No other nut required for positive lock when you specify Lewis Loktite Speed Holding Nuts. Manufactured to American Standard regular or heavy dimension, the trimmed sides provide a close wrench fit. Available in Hot-Dip Galvanized finish for Double-Life, greater economy, in black for low original cost. Call, wire or write for samples, prices.

All products are manufactured in the U.S.A. to A.S.T.M. specifications.

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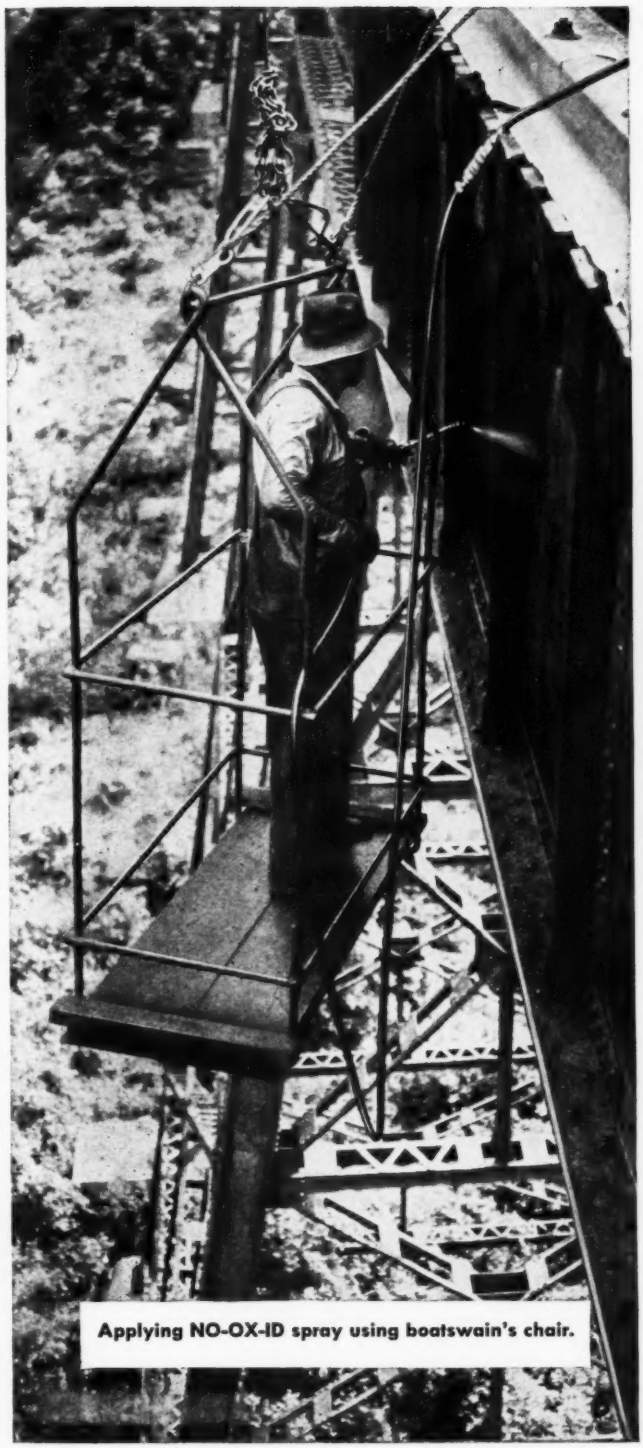
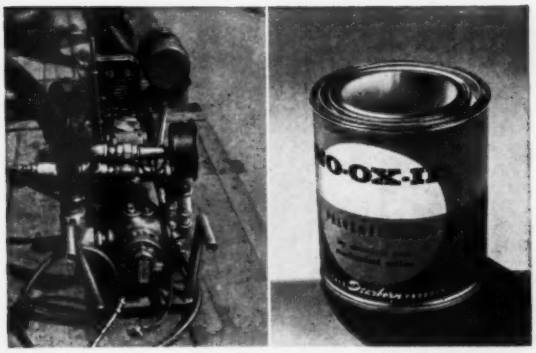
LOOK FOR THIS STAMP OF U QUALITY



Applying NO-OX-ID spray using boatswain's chair.

NO-OX-ID SPRAY METHOD SAVES MONEY ON BRIDGE PROTECTION FOR MANY MAJOR RAILROADS...



On-the-job spray equipment delivers NO-OX-ID direct from drum to sprayer. There is a NO-OX-ID consistency for every bridge spraying job.

Costly, time-consuming bridge painting programs are rapidly being replaced by the NO-OX-ID Spray Method. Procedure is simple. (1) Remove dirt and loose rust. (2) Spray steel surface with one coat of NO-OX-ID. Result: effective, economical, long-term protection.

REASONS FOR THE SWING TO NO-OX-ID

- Labor costs reduced...fewer bridge gangs needed
- Less scaffolding required
- Reduced steel preparation time
- One coat gives long-term protection

Dearborn has served railroads since 1887 with NO-OX-ID rust preventives, water treatment, cleaners and detergents.

FOR LONG TERM PROTECTION

Dearborn® NO-OX-ID

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Chicago 54, Ill.

Please send me full information on the NO-OX-ID Bridge Spraying Method.

Name.....*Title*.....

Railroad.....

Address.....

City.....*Zone*.....*State*.....

New Products (Cont'd)

are the flanges of the section. Because of the thickness and rigidity of the rail heads, the pile can push aside obstructions or punch through tough strata without damage or deflection. Bottom driving plates are usually not necessary. The compact cross section of the pile, with its short, heavy webs and three thick flanges, protects the pile from longitudinal tearing during driving.

The rail piles will be supplied in sizes ranging from 60 to 133 lbs per ft, and in lengths from 28 to 39 ft or multiples. Sections of rail piles can be butt-welded in the field for especially deep driving. *L. B. Foster Company, Dept. RTS, P. O. Box 1647, Pittsburgh, Pa.*

MAP AND BLUEPRINT FILE

AN ALL-METAL map and blueprint file is now available in a variety of popular colors to match the current trend toward the use of color in office furniture and filing equipment. The file, designated the model MT4, is furnished in the following colors: Desert sage; mist green; autumn haze; silver gray; brown; and, charcoal. Other colors to match color samples submitted by the purchaser are available upon request. All of the files feature a card control file for quickly locating any filed map or print, a patented tilting base to accommodate filed items up to 60 in long, and a storage shelf. *Scott-Rice Company, Dept. RTS, 610 South Main street, Tulsa 3, Okla.*

THE MONTH'S NEWS...

. . . among railway men—the associations—the suppliers

General

W. T. Alexander, Jr., assistant chief engineer, system, on the New York Central at New York, has been promoted to general manager of the road's western district with headquarters at Cleveland, Ohio. Mr. Alexander succeeds **R. H. McGraw,** who has retired after 46 years of service with the road.

Mr. Alexander was graduated from Rice Institute in 1924 and began his railroad career in that year as an instrumentman with the Gulf Coast Line (now MP). He served in various engineering capacities on the Missouri Pacific and was employed as assistant engineer when, in 1942, he joined the Texas & Pacific as

W. T. Alexander, Jr.

assistant chief engineer. In 1948 he was promoted to superintendent on the T&P —the position he held at the time he joined the New York Central in February 1955 as assistant chief engineer.

Engineering

W. H. Pollard, assistant engineer on the Chesapeake & Ohio at Richmond, Va., has been promoted to division engineer at Newport News, Va., in charge of maintenance and construction at the Newport News and Norfolk terminals. **R. H. Abbott** has been named division engineer for the Richmond division, exclusive of Newport News and Norfolk. Mr. Abbott, who has jurisdiction over maintenance and construction, will make his headquarters at Richmond.

S. B. Austin, has been named chief engineer of the Georgia & Florida and **F. B. Ahouse** has been appointed engineer maintenance of way.

C. T. Gunsallus, assistant chief engineer on the New York Central at New York, has been named engineer of track —system.

J. T. Schoener has been promoted to assistant engineer of structures on the Missouri Pacific with headquarters at St. Louis, Mo., succeeding, **J. H. Shiebers,** who has retired.

W. G. E. Robinson, assistant engineer of the Canadian Pacific's Eastern region, maintenance of way department, at Toronto, has retired after 46 years of service.

Harry A. Wistrich, assistant chief engineer of the Lehigh Valley, has been promoted to chief engineer—construction and maintenance, succeeding **Ralph E. Patterson,** who retired December 31 upon completion of over 44 years of service with the road. **Henry F. Reilly,** engineer maintenance of way, has been promoted to assistant chief engineer succeeding Mr. Wistrich.

J. R. Miller, supervisor of track on the Illinois Central at Corinth, Miss., has been promoted to assistant to the division engineer at Memphis, Tenn., succeeding **L. E. Brault,** who has been named division engineer at that location. Mr. Brault succeeds **T. D. Kern** who has been promoted to office engineer at Chicago. Mr. Kern succeeds **A. L. Sams** who has been promoted to principal assistant engineer, succeeding **N. W. Kopp,** whose appointment as chief industrial engineer on the Elgin, Joliet & Eastern is noted elsewhere in these columns.

W. N. Downey, assistant engineer of bridges on the Atlantic Coast Line at Wilmington, N. C., has been promoted to engineer of bridges, succeeding **G. G. Thomas,** who has retired after more than 50 years of service with the road.

R. E. Catlett, assistant division engineer on the St. Louis-San Francisco at Chaffee, Mo., has been promoted to division engineer at Fort Worth, Tex. **R. D.**

OPPORTUNITIES FOR TWO YOUNG MEN

Established railway supply firm requires two young, aggressive service representatives leading to future in sales. Starting salary open. In reply give age and experience. All replies held confidential. Address Box 21, RAILWAY TRACK AND STRUCTURES, 79 West Monroe St., Chicago 3, Illinois.

FOR SALE

FOR SALE—2 Burro Model 30 Cranes, Gasoline Engine, 45' Boom, 7½-Ton Capacity, Magnet and Bucket. Built 1950 and 1952. Write Box 2, RAILWAY TRACK & STRUCTURES, 79 West Monroe St., Chicago 3, Illinois.

USS Quality Trackwork on the job

These two USS manganese steel insert crossings have been taking a steady beating from heavy-duty freight and high-speed passenger traffic for several years. Nevertheless, they are still in good condition —further proof of the dependable, long-term, trouble-free service which can be obtained from well-made USS manganese steel insert crossings.

The two-rail, 49°-angle crossings shown are located in Central Ohio where three tracks of the Pennsylvania Railroad cross the double track of the Cleveland, Cincinnati, Chicago and St. Louis Railway (southern district of the New York Central).

USS Quality Trackwork products possess an inherent strength and hardness that give them long life and result in greatly reduced maintenance. The extra care and effort that goes into the manufacture of switches, frogs and special track layouts make USS Quality Trackwork the finest you can buy. Specify USS Quality Trackwork for all your requirements.

For further details, write to United States Steel, 525 William Penn Place, Pittsburgh 30, Pa. Also, you are invited to contact our engineers at any time for assistance in design.

USS **TRACKWORK**

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

7-247

Railway Personnel (Cont'd)

White, roadmaster at Sherman, Tex., has been promoted to assistant division engineer at Chaffee, succeeding Mr. Catlett.

J. H. Brown, division engineer at Fort Worth, has been promoted to assistant chief engineer of construction with headquarters at Springfield, Mo. **O. E. Fort,** division engineer at Springfield, was promoted to chief engineer maintenance at that location. **G. L. Harris,** division engineer, Southern division at Amory, Miss., has been transferred to the Eastern division at Springfield. **G. E. Warfel,** has been transferred from the Western division at Enid, Okla., succeeding Mr. Harris. Mr. Warfel is, in turn, replaced by **C. A. Peebles,** assistant division engineer at Ft. Scott, Kans.

Thomas W. Creighton, district engineer on the Canadian Pacific at Vancouver, B.C., has been promoted to assistant engineer maintenance of way with headquarters at Toronto. Mr. Creighton is succeeded by **James Cherrington,** assistant district engineer at Vancouver. **George G. Fyke,** division engineer at Vancouver, has been promoted to assistant district engineer to succeed Mr. Cherrington.

Edward Green, resident engineer on the Nickel Plate at Fort Wayne, Ind., has been promoted to division engineer of the Clover Leaf district with headquarters at Frankfort.

Mr. Green joined the Nickel Plate in 1924 as a rodman on the Clover Leaf district at Frankfort. Except for a year at Fort Wayne, he worked at Frankfort until 1945, advancing to instrumentman and then assistant engineer. On May 1, 1945, he was promoted to assistant division engineer on the Buffalo-Cleveland divisions with headquarters at Conneaut, Ohio. He was transferred to Cleveland in 1952 as assistant engineer in charge of contracts, leases and agreements. He was promoted to resident engineer at Fort Wayne on August 1, 1953—the position he held at the time of his recent promotion.

Beverly S. Converse, assistant engineer, system, on the New York Central, has been promoted to director of engineering with headquarters at New York. Mr. Converse succeeds **W. T. Alexander, Jr.,** who has been named general manager of the road's western district at Cleveland, Ohio.

Mr. Converse graduated from Purdue University in 1929 and began his railroad career in the engineering department of the Chicago & North Western in 1936. After serving as division engineer on the C&NW at Sioux City, Iowa,

B. S. Converse

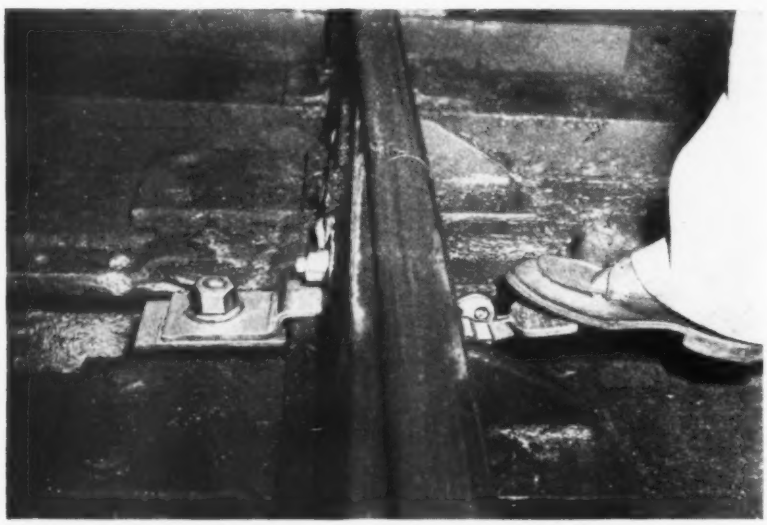
he joined the Denver & Rio Grande Western as division engineer at Grand Junction, Colo., in 1953. He joined the New York Central in June 1956.

N. W. Kopp, principal assistant engineer on the Illinois Central at Chicago, has joined the Elgin, Joliet & Eastern as chief industrial engineer, succeeding **E. G. Slocum** who has been named assistant to the president—management services.

Lynn A. Pelton, assistant engineer of tests on the Pennsylvania at Altoona, Pa., has been promoted to district engineer at Fort Wayne, Ind., succeeding **Paul J. Harnish,** who has been promoted to assistant regional engineer of the New York region. Mr. Harnish succeeds **Harry J. McNally,** who has been promoted to regional engineer of the New York region.

Mr. McNally graduated from Lehigh University in 1937 and shortly there-

(Continued on page 62)



Switch point—*Closed position locked*

Automatic SWITCH POINT LOCK

Provides SAFETY With Economy

The Automatic Switch Point Lock provides a rugged and dependable safety device in a *self-contained* unit for manually operated switches. Operated by a foot pedal which *automatically* returns to locked position when the switch stand lever is used to close the switch.

The RAILS Company

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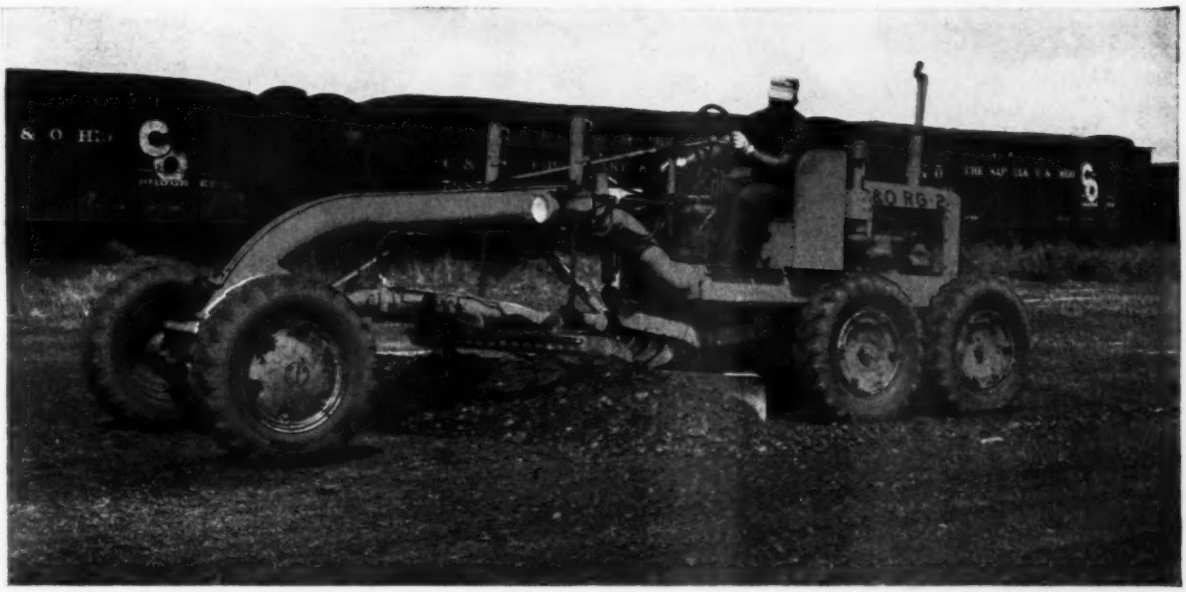
Maplewood, N. J. • Chicago, Ill. • St. Louis, Mo.

Allis-Chalmers LOW-COST Model D

BIG

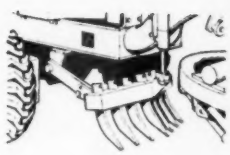
in power
in strength
in versatility



THE MODEL D GRADER HAS THE POWER to tackle bigger jobs. With either 50-hp gasoline engine or 50-hp diesel engine, there's extra torque and lugging ability for top performance on all projects.

BIG-GRADER DESIGN means long life for the Model D — regardless of the job. Strong, single-member main frame . . . husky drawbar and one-piece circle . . . work-boosting ROLL-AWAY moldboard . . . ground-gripping tandem drive . . . precision control . . . easy operation and simple servicing — all are plus performance advantages.

JOB-MULTIPLYING ATTACHMENTS make the Model D a *specialist* on many applications:—



HYDRAULIC SCARIFIER — exclusive mid-ship mounting under D's heavy end for better steering, maximum traction and full penetration. With seven removable teeth, scarifier cuts a swath 27¾ in. wide.

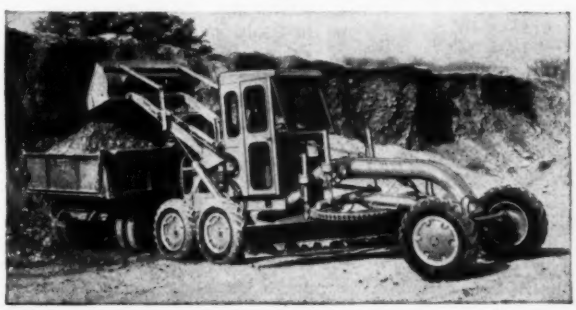
ALSO output-boosting extras — rear-mounted ⅝-yd loader, shoulder maintainer, windrow eliminator, snowplow blades. Plus optional equipment — including power circle turn, shiftable moldboard, leaning front wheels, all-weather cab, heater, etc.

TRANSPORTATION DEPT., TRACTOR GROUP, MILWAUKEE 1, WISCONSIN

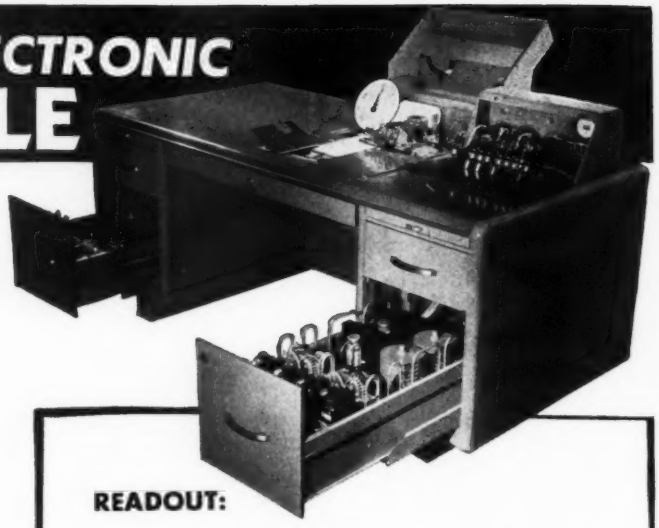
ROLL-AWAY is an Allis-Chalmers trademark.

ALLIS-CHALMERS

See the Model D at your Construction Machinery Dealer — headquarters for True Original Parts and Service.



Now the Ametron® ELECTRONIC TRACK SCALE



FAST, ACCURATE WEIGHING OF FREIGHT

After years of research, and development the largest producer of Electronic Scales in the World introduces the Ametron Electronic Motion Weighing Railroad Scale.

We give speed and accuracy
We give unequalled service
We give fully automatic operation
We give adaptability for single or multiple draft gravity motion weighing.

The same calibre of service and customer co-operation, the railroad industry has been accustomed to receiving from the Streeter-Amet Company since 1888, is available in this Ametron Electronic Scale.

READOUT:

Unit can be furnished with digital readout to punch information directly into five channel teletype tape or business machine cards.

Write for illustrated Bulletin B-14 describing fully this new Ametron Electronic Track Scale.

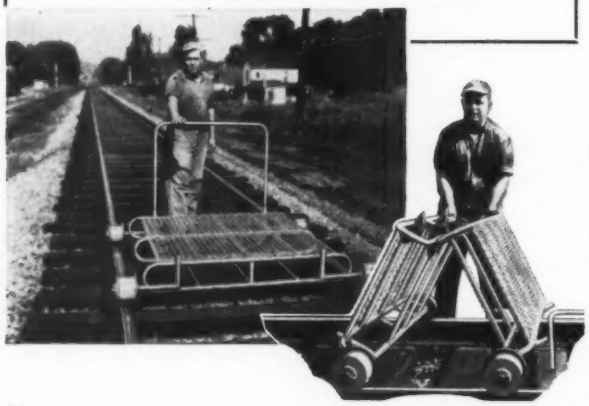
THE STANDARD OF ACCURACY SINCE 1888

STREETER-AMET COMPANY

GRAYSLAKE • ILLINOIS

Branches in Detroit, Pittsburgh, Allentown, Birmingham and Los Angeles

New! NOLAN TOOL AND SUPPLY CAR



This efficient car is of all-tubular high-carbon steel construction, and designed to safely carry heavy loads of ties, rails, supplies and tools. 2000 lbs. capacity.

The car breaks conveniently in the center into two sections for easy handling and transportation. Easily and quickly unhooked or hooked together. Each section can be used for a truck seat.

The deck is heavy mesh-expanded steel, which prevents slippage of loads. Removable handle can be used at either end. Easily pushed on ball bearing cast steel wheels. Platform size 48" x 45". Height above rail 8". Weight 140 lbs. complete—70 lbs. per section. List $142.50. Order now!

Write for complete catalog of Nolan railroad equipment and supplies.

NOLAN

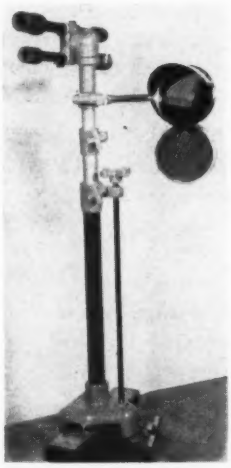
THE NOLAN COMPANY

166 Pennsylvania Street, BOWERSTON, OHIO

HAYCO

Accurate, rugged, and foolproof . . .

The New Model HL Track Lining Scope



The top telescope looks forward—the lower one, factory-set in precise parallel, looks backward. Vertical cross-hair in each cuts gauge edge of rail when telescopes are tilted. There is no way to go wrong after Model HL is leveled (with the convenient knee-high control).

Tough, heat-treated cast aluminum construction; weight 9 lbs. Twin 6-power achromatic telescopes, adjustable for individual vision. Raises to 5' 4" high on 6" rail. Sturdy Carrying Case furnished. Write for Circular No. 111.

The BRICE HAYES Co.,
6710 Northwest Highway,
Chicago 31, Illinois

NOW!

Keep your right-of-ways

CLEAN

AS A WHISTLE

with UROX* WEED KILLER

Amazingly effective!

Longer lasting! Saves you time and money!

Yes, now you can keep your right-of-ways, switchyards and trestles cleaner *for a longer time and at lower cost than ever before* –with UROX, General Chemical's sensational new weed killer. UROX is just what every cost-conscious maintenance-of-way expert has been looking for. Here's why:

- **You need only one application a year under normal growing conditions!**
- **Small quantities do the job!**
- **Results "carry over"! Light "booster" doses keep most areas weed-free from season to season.**

And UROX is easy to use. Comes in free-flowing granular form. No expensive equipment to buy. No dilutions necessary. No water needed. Safer, too—low toxicity to humans and animals.

Get complete information right away! Just drop a line to:

GENERAL CHEMICAL WEED CONTROL

*General Chemical Trademark

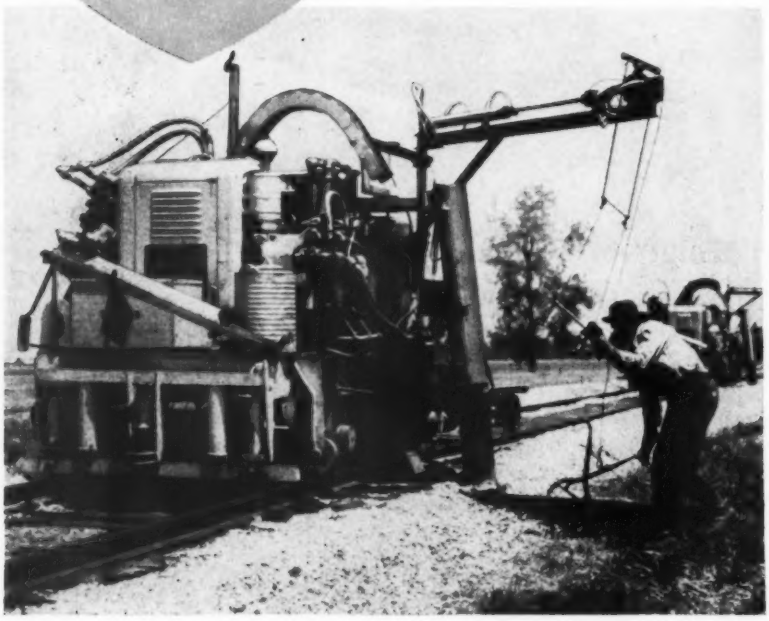
WEED KILLER DEPARTMENT
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

HOW TO REPLACE TIES
economically

... with minimum disturbance to the track

R·M·C
TIE Master

TieMaster does the complete tie replacement job, using only an operator and two laborers to attain speeds of better than one tie per minute. Only the TieMaster does all essential tie replacement steps—lifting the rails enough to clear tie plates, removing old tie, scarifying the bed, and inserting new tie. *Bulletin T-55.*



Railway Maintenance Corporation
Pittsburgh 30, Pa.

McWilliams Mole
Super Mole
McWilliams Tie Tamper
Crib Cleaner
Ballast Distributor
TieMaster
LineMaster
SpikeMaster
Tie Unloader
BoltMaster

Railway Personnel (Cont'd)

after joined the Pennsylvania as an engineering apprentice working in the Philadelphia and Wilkes-Barre areas. He was named assistant supervisor of track at Pittsburgh in 1931, and supervisor of track at St. Louis in 1943.

Harry J. McNally

From 1946 until 1951, he served as supervisor of track at New Brunswick, N. J., and was subsequently named assistant division engineer at Williamsport, Pa. He was named division engineer at New York in 1954 after having served as engineer maintenance of way and signals at the Washington, D. C. Union Terminal.

E. L. Anderson, chief engineer of the St. Louis-San Francisco, has been promoted to assistant vice-president-operation, at St. Louis. **B. H. Crosland,** chief engineer maintenance of way, succeeds Mr. Anderson as chief engineer at Springfield, Mo. Mr. Anderson succeeds **L. B. Clary,** who has retired.

Mr. Anderson was born October 20, 1888, at Hull, Ill. He graduated from the University of Missouri in 1912 and worked on government land surveys until January of the following year when he joined the Frisco as a rodman. He

E. L. Anderson

subsequently held positions as transitman, rail inspector, assistant engineer, roadmaster, division engineer, assistant to general manager, assistant chief engineer maintenance, and assistant chief

engineer of the road's Eastern district. On June 1, 1950, he was promoted to chief engineer—the position he held at the time of his recent promotion.

Mr. Crosland was born July 9, 1891, at Rochester, N. Y. He received his higher education at Valparaiso University and entered railroad service working summers with the Canadian Pacific as a chainman in 1908. From 1914 until 1917 he served with the ICC as an instrumentman on railway valuation. After service in World War I, he joined the Frisco in 1920 as a transitman, subsequently serving as roadmaster, assistant

B. H. Crosland

division engineer and division engineer. He again served with the U. S. Army during World War II as chief engineer with the Military Railway Service, returning to the Frisco in 1946 as assistant chief engineer of the road's western district. He later served as assistant chief engineer of the eastern district and as assistant chief engineer of the system. He was named assistant chief engineer maintenance of way on October 1, 1952—the position he held at the time of his recent promotion.

P. P. Wagner, Jr., whose promotion to division engineer on the Missouri Pacific at Wichita, Kan., was recently announced (*RT&S*, Nov., p. 66), was born September 18, 1921, at Marceline, Mo. He attended Kansas State College and entered railway service on January 1, 1947, with the Missouri Pacific as an instrumentman at St. Louis, Mo. In February 1949 he was transferred to Poplar Bluff, Mo., and on April 1, 1951, was promoted to assistant engineer at Memphis, Tenn. On April 16, 1956, Mr. Wagner was promoted to assistant division engineer with headquarters at St. Louis—the position he held at the time of his recent promotion.

Track

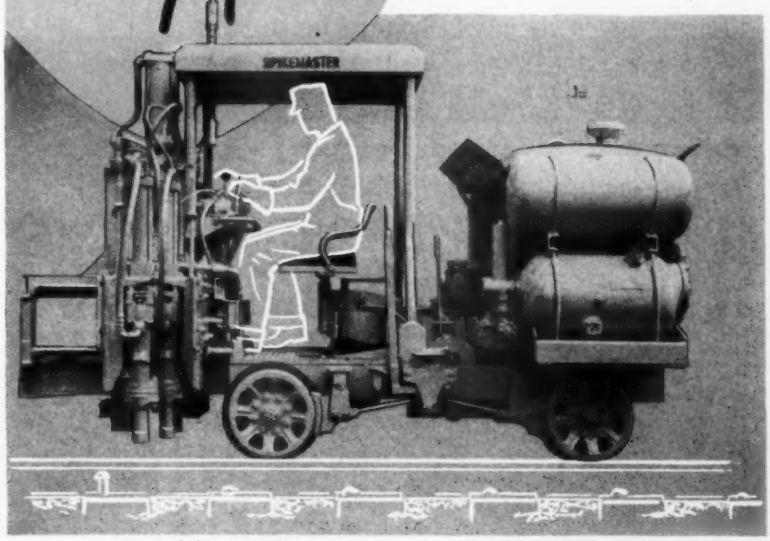
W. H. Yost, Jr., has been appointed assistant roadmaster on the Norfolk division of the Norfolk & Western with headquarters at Crewe, Va., succeeding **Curtis Jamerson,** transferred.

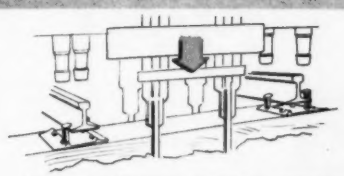
L. E. Hobbs, assistant roadmaster on the St. Louis-San Francisco at Ft. Scott, Kan., has been promoted to roadmaster on the 35th track division with head-

HOW TO DRIVE SPIKES
AT SPEEDS OF
6 ties per minute

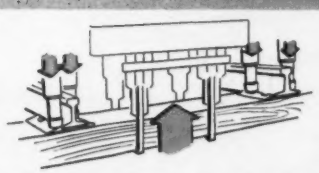
R·M·C
SPIKE*Master*

SpikeMaster will produce dramatic cost reductions in both tie replacement and rail renewal operations. Machine will drive four spikes simultaneously—one on either side of both rails—or guns can be operated individually in non-uniform track conditions. Adjustable for all tie plate punching. *Bulletin S-55.*





In tie replacement operations nipping tongs are lowered to engage tie and raise it square with the rails.



With nipping tongs holding tie, driving guns drive spikes individually or four at a time.

Railway Maintenance Corporation
Pittsburgh 30, Pa.

McWilliams Mole
Super Mole
McWilliams Tie Tamper
Crib Cleaner
Ballast Distributor
TieMaster
LineMaster
SpikeMaster
Tie Unloader
BoltMaster

ADD LIFE

TO YOUR

TIMBER BRIDGES

■ AVOID expensive replacement jobs. OSMOSE special in-place preservative (Pentachlorophenol) treatment can add 25 years useful life to standing timber structures AT ONLY 5% OF THE REPLACEMENT COST.

Our exclusive techniques, equipment, specially-trained crews and a patented pentachlorophenol solution (to eliminate fire hazard) make this BRIDGE MAINTENANCE SERVICE a "must" in your budget.

HOW OSMOSE BRIDGE-SPRAY SERVICE WORKS

You select the structures (bridges, wharves, etc.) and *at no cost to you* Osmose engineers thoroughly examine them. Our quotation covers the cost of the above-ground maintenance treatment, and as a separate item our famous OSMO-PLASTIC below-ground piling treatment. Complete data reports come to you at the conclusion of each job.

WRITE Us for details! See what we have accomplished for the G.M.&O. and others. We can do it for *you!*

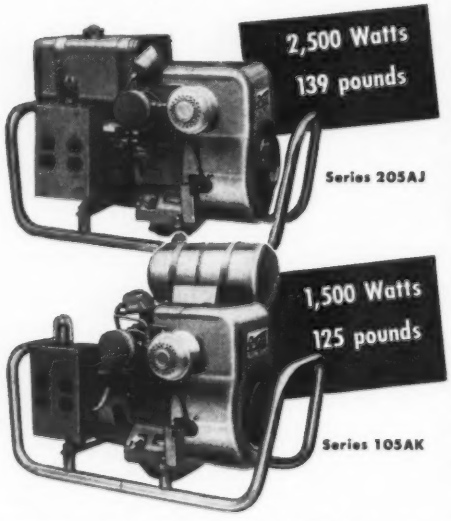
We Are Wood Maintenance Specialists

OSMOSE

OSMOSE WOOD PRESERVING CO. OF AMERICA, INC.
980 ELLICOTT STREET BUFFALO 9, N. Y.

YOU GET *4-cycle* DEPENDABILITY

AND *Light weight* TOO . . . IN AN



ONAN Electric Plant

These power-packed electric plants give you all the *4-cycle* advantages of quick starting, long life and trouble-free operation . . . with an amazing weight saving over usual 4-cycle plants. You can carry them easily to any spot . . . and you can count on them delivering their full rated capacity as long as you need it. Both are single-cylinder, air-cooled . . . completely equipped and ready to go.

Other models to 75,000 watts.

Write for special folder on lightweight models!

D. W. ONAN & SONS INC.

Onan ELECTRIC PLANTS

3905 University Ave. S. E., Minneapolis 14, Minnesota

Railway Personnel (Cont'd)

quarters at Ft. Worth, Tex. Mr. Hobbs succeeds **B. J. Bishop,** who has been transferred to Sherman, Tex., succeeding **R. D. White,** whose promotion to assistant division engineer at Chaffee, Mo., is noted elsewhere in these columns.

Maynard W. Krug, track supervisor on the Pennsylvania at Anderson, Ind., has been appointed supervisor of methods and cost control at Buffalo, N. Y. Mr. Krug succeeds **Robert E. Gorsuch,** who has been transferred to Philadelphia. **William T. Friedline,** general foreman of machinery at Buffalo, has been promoted to assistant track supervisor at Johnstown, Pa.

E. L. Gaines, general foreman on the Illinois Central, has been promoted to supervisor of track at Corinth, Miss., succeeding **J. R. Miller,** who promotion to assistant to division engineer is noted elsewhere in these columns.

Association News

Northwest Maintenance of Way Club

The February meeting of the club will be held on the 28th at the Midway Civic Club, 1931 University Avenue, St. Paul, Minn. The principal speaker will be Cleston G. Parris, of the Association of American Railroads, who will present a program on the chemical control of vegetation on the railroads.

American Railway Engineering Association

A tentative skeleton program is now available for the annual convention of the American Railway Engineering Association to be held at the Sheraton-Jefferson hotel, St. Louis, March 4-6. The program shows the schedule of committee reports to be presented but indicates only a few of the addresses. It is as follows:

Monday, March 4, 1957
Gold Room, 9.30-12:00
Address by President Hedley
Reports of Secy. and Treas.
Special Addresses
Gold Room, 2:00-5:00
Reports of Committees
20—Contract Forms (Special Feature)
11—Records and Accounts
14—Yards and Terminals (Special Feature)
16—Economics of Railway Location and Operation (Special Feature)
25—Waterways and Harbors
9—Highways (Special Feature)
Gold Room, 7:00 p.m.
Dinner Party
Tuesday, March 5
Ivory Room, 9:00-12:00
Reports of Committees

AGRONYL R WEED CONTROL

Test plots 4 years ago...
35,000 Track-Miles last year!

From test plots to 35,000 track-miles a year . . . in just four years! That's the impressive record of AGRONYL R, Socony Mobil's new type weed control. AGRONYL R is a product of Socony Mobil's Research laboratories . . . was developed and perfected in cooperation with leading railroads on rights-of-way from the Gulf of Mexico to the Canadian border. It's a distinctly new kind of herbicidal oil, highly effective, and economical to use.

Self-Application

Many railroad engineering departments are turning to *self-application* for weed control for main lines, branch lines, secondary main lines and yard application.

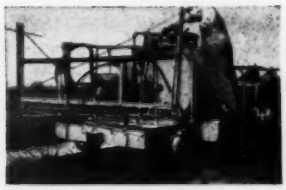
Advantages of Self-Application

These engineering departments have studied the problem of weed control and have found they can cut costs by self-application. Self-application can be made when desired and needed, and can be made when convenient to other maintenance schedules. *Weed control is being tied in with road-bed maintenance programs.* In this way, application costs are actually reduced! Shown below are examples of actual costs by *self-application.*

WORK TRAIN... a railroad reports an AGRONYL R application at $7 per acre for the system including material cost, labor, and locomotive charges.*

SPRAY CAR (self-propelled) . . . a railroad reports an AGRONYL R application at $4.80 per acre for the system including material cost and labor.*

CONVERTED WEED BURNER... a railroad reports an AGRONYL R application at $7.60 per acre for the system including material cost and labor.*



YARD TYPE CAR... a joint-agency operation reports an AGRONYL R application for yard control at $13.90 per acre including material cost and labor.*

SOCONY MOBIL OIL COMPANY, INC., and Affiliates:
MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

We will be discussing these results and costs of application in detail with you prior to your preparation of budgets for next year. However, if you desire information sooner, we suggest you write us for the data you require.

Mobil **RAILROAD PRODUCTS**

150 East 42nd St., New York 17, N.Y.
59 East Van Buren St., Chicago 5, Ill.

*NAMES ON REQUEST

When "hot" freight has to be spotted fast call on speedy, mobile SwitchMobile

When a yard emergency arises... when high-priority freight cars have to be collected from many sidings and coupled for fast movement out... you want switching *speed*. Oftentimes, you don't get it, because your on-track switchers must spend so much time maneuvering through switch points. Time is lost waiting for main line clearance and at the job spotting, cutting out, and assembling cars... moving unwanted cars clear of the line.

You can save many hours per workweek with the new LeTourneau-Westinghouse SwitchMobile — the go-anywhere 208 hp locomotive-on-rubber. SwitchMobile combines off-track mobility with high traction. It can readily start a string of cars totaling 1,250 tons.

Travels direct to jobs

Prime benefit of this big, rubber-tired car-spotter for your operations is that it isn't tied to tracks, as steel-wheeled switchers are. It travels direct to jobs —over tracks, switches, embankments, ditches, roads. Wide-gauge low-pressure tires of SwitchMobile straddle rails . . . won't damage tracks or switches, won't chamfer ties.

Equipped with standard AAR Type E couplers and with air hose connections at both ends, 16 mph SwitchMobile can push or pull with all the ease and safety of an on-track switcher.

This mobile, rubber-tired car-handler can "leap-frog" strings of cars in a matter of seconds... doesn't have to back-up and switch to another track to move a different car. And, because it can leave the track in a moment, it never interferes with other rolling freight in motion on the line.

Meets ICC requirements

All approved safety features have been built into this rubber-tired locomotive, in accordance with ICC regulations. A 33-cu. ft. Westinghouse compressor supplies brake pressure for all cars... automatic controls set brakes, should air supply fail in both main and reserve tanks. "Dead-man" safety switch shifts transmission to neutral if operator removes foot from pedal.

Your switcher crews will find SwitchMobile equipped with familiar railroad conveniences: a big, roomy, locomotive-type cab, standard controls (plus steering wheel) and, on the outside, non-skid steps, decking, and hand-rails. And they will appreciate SwitchMobile's "extras" — 180° visibility to front or rear, seats facing in opposite directions, with controls mounted on center column which pivots to either operator position.

Tested and now in production

SwitchMobile has proven its money-saving utility on major RR applications. Put it to work for you, to relieve congestion and eliminate time delays in your crowded, busy freight yards. Ask for complete specifications and operating data.

SwitchMobile—Trademark SM-1139-RR-z

LeTourneau-WESTINGHOUSE Company
Railroad Sales Division
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company

GEARED TO PROGRESS
RPI MEMBER

Association News (Cont'd)

13—Water, Oil and Sanitation Services (Special Feature)
24—Cooperative Relations with Universities (Special Feature)
7—Wood Bridges and Trestles (Special Feature)
30—Impact and Bridge Stresses
8—Masonry (Special Feature)
15—Iron and Steel Structures
Gold Room, 12:00 noon
Association Luncheon
Announcement of results of election of officers
Address
Ivory Room, 2:30-5:20
Reports of Committees
28—Clearances
29—Waterproofing
17—Wood Preservation
6—Buildings (Special Feature)
27—Maintenance of Way Work Equipment
22—Economics of Railway Labor (Special Feature)
3—Ties (Special Feature)
Wednesday, March 6
Gold Room, 9:00-12:20
Reports of Committees
Special Committee on Continuous Welded Rail

Meetings and Conventions

American Railway Bridge and Building Association—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

American Railway Engineering Association—Annual Meeting, March 4-6, 1957, Hotel Sheraton Jefferson, St. Louis, Mo. Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—Annual Meeting, April 29-May 1, 1957, Conrad Hilton Hotel, Chicago. W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—Next meeting, February 25. S. F. Kosco, Secretary-treasurer, 135 E. 11th Place, Chicago 5.

Metropolitan Maintenance of Way Club—G. Rogers, Secretary-treasurer, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—R. B. Davis, Secretary-treasurer, Room 1025, Frisco Building, 906 Olive street, St. Louis 1, Mo.

National Railway Appliances Association—J. B. Templeton, Secretary, 1020 So. Central avenue, Chicago 44; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Railway Tie Association—Roy M. Edmonds, Secretary-treasurer, 1221 Locust street, St. Louis 3, Mo.

Roadmasters' and Maintenance of Way Association of America—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

4—Rail
5—Track (Special Feature)
1—Roadway and Ballast (Special Feature)
Closing Business
Installation of Officers

Mississippi Valley Maintenance of Way Club

In place of its regular monthly dinner meeting in March, this club has scheduled a special banquet and program for Monday evening, March 4, to coincide with the first day of the AREA convention. The banquet will be held at the Sheraton-Jefferson Hotel, St. Louis, and will start at 7 p.m. Lucius Beebe, nationally known author, journalist and railroad enthusiast, will be the main speaker. The reservations are being handled by Harold L. Emerson, Banquet Chairman, 319 N. Fourth Street, St. Louis.

Supply Trade News

Roger B. Coleman, assistant sales manager of the railroad division of the **Chipman Chemical Company** at Bound Brook, N. J., has been promoted to district manager at Chicago. **A. J. Reading,** general manager at Chicago, has resigned; the position of general manager at Chicago has been abolished. **J. R. McCambridge,** western technical service manager in charge of weed control at Portland, Ore., has been named technical sales representative at Chicago. **D. A. Zanette** has been appointed district manager with headquarters at Palo Alto, Cal.

T. W. Krueger, assistant sales manager of the **Duff-Norton Company,** has been promoted to sales manager of the firm's Jack division.

Robert E. Blackmore has been appointed sales representative for the **Rubber & Asbestos Co.,** of Bloomfield, N. J. Mr. Blackmore will maintain his headquarters at Berwyn, Ill.

Boyd S. Oberlink, group vice-president of the **Allis Chalmers Manufacturing Company,** and former vice-president and general manager of the firm's Construction Machinery division, has been elected to the firm's board of directors.

A. C. Brown, Jr., general sales manager of the **Air Reduction Sales Company,** has been promoted to vice-president—eastern region with offices in New York City. **D. D. Spoor,** equipment sales manager at New York, has been promoted to vice-president—Midwestern region and will be located at Chicago. **J. J. Lincoln, Jr.** vice-president, New York, was named vice-president—Southern region with headquarters at Houston, Tex.

Grades roadbeds . . . yards . . . crossings
Maintains ditches . . . roads . . . right-of-way

Up to 25% more push power

By itself, the rated horsepower of a grader doesn't mean a thing. It's the *usable power at the blade* that counts.

How *much* available engine-power you actually put to work depends on your grader's gear-train. With your gear-shift, you proportion driving force between *push* and *speed*. Working in too low a gear-ratio wastes power that could be used to move the load faster. Too high a gear-ratio leaves operator the choice of taking a very light cut . . . or of overloading, and pulling down his engine to inefficient operation at close to stalling speeds.

Up to 33% more forward speeds

That's the reason Adams gives you a full range of 8 forward speeds — more than most other graders. Operator has more freedom to work at *fastest practical speed* for any load condition . . . can complete jobs 10 to 25% faster than comparable competitive graders.

Fast on shuttle work

In reverse gear, Adams gives you a range of 4 back-up speeds (instead of 2 in other graders) with a top of 13 mph. That means faster shuttle work — important today because of high man-hour and machine-hour cost.

Higher-than-average travel speeds — up to 26 mph — save you additional time on job-to-job travel with Adams.

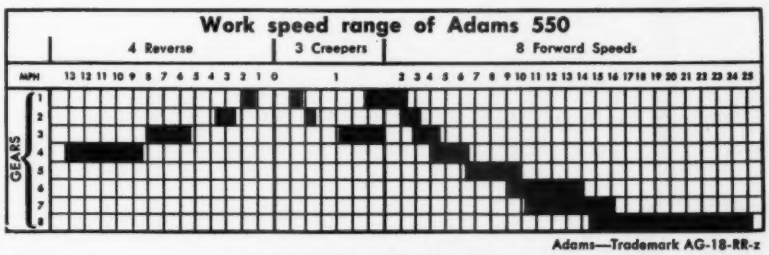
Extra lugging power when needed

Adams has an even wider gear-range available for extremely hard or tough materials. Optional creeper gears apply *full* horsepower at speeds down to 32 ft. per min. with accompanying increase in tractive effort. With these 3 additional speeds (total 11 forward), you get extra power . . . save wear and stress on grader . . . and have far more accurate control for finish-grading.

Let us give you details on how this all adds up to more work capacity per engine horsepower. Adams graders are available in five models, rated 60 to 150 horsepower. Write us for comparative data on best size for you.

60 hp Model 220 is a top-quality, low-cost grader, with more limited range of gear-ratios than heavier-duty models as described above.

Wide speed selection lets Adams graders work any load at fastest practical speed. That means more work done in a day's time, more power for working in tough materials.



Adams—Trademark AG-18-RR-z

LeTourneau-WESTINGHOUSE Company
Railroad Sales Division
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company

MEMBER

TO THE EDITOR . . .

Readers are urged to avail themselves of the opportunity to express themselves concerning the contents of this magazine.

Discusses Change in Status of Foreman

TO THE EDITOR:

Reference is made to the item on Page 79 of your December 1956 issue, submitted by "A Foreman," who reasons that foremen now have greater responsibility than formerly, with insufficient difference in pay over that received by members of their forces.

This is a timely subject and merits the attention of those in supervision above the rank of foreman.

It is true on a large segment of our industry that territories such as sections, districts, and divisions have greatly increased because of automation and improved means for transporting employees to and from work. These changes are necessary to permit the required maintenance to be carried on in spite of greatly increased costs for labor and material, and in some instances because of insufficient labor. To do otherwise results in greatly increasing deferred maintenance.

Changes in length of territories and reorganization of maintenance forces have, for the most part, resulted from management's policy to build more strength and dependability into all components of property devoted to rail transportation.

We may readily recall occurrences during recent years requiring frequent night and holiday work, daily and weekly inspections by more supervision and larger gangs. This frequent attention and repair work was required because of washouts, unstable roadbed, minor derailments, wrecks, failure of equipment components, rail failures, and similar conditions.

Because of lesser number of employees and streamlined accounting systems, a foreman now completes his reports for labor and material with much less effort.

The conditions causing previous costly repair work and inspections have been obviated by new ditches, setting side ditches back, flattening slopes, strengthening embankments, grouting roadbed, installing rail and pile cribbing, improved design of turnout components, larger rail sections, improved rolling stock, control cooling of rail, stronger pole lines, and other improvements in the properties.

These improved facilities function with greatly reduced attention on the part of the foremen during all seasons. Present responsibility of the foreman in many instances is applicable to those situations where failure on his part may result in traffic delays, train accidents, miscellaneous accidents to employees and equipment in his charge, cooperation with other departments, preventative maintenance and efficient performance of his smaller gang.

The track work performed by mechanized gangs over an extended territory such as a division, district or system, must be planned by management in order of urgency to best utilize the force and equipment available, either on a cycle or limited cycle basis. Where one foreman may have urgent work for such force, another may have work which is more urgent.

With reference to difference in pay between track laborers and track foremen, one must consider that most of the work performed by laborers and requiring brawn, has ben eliminated through use of powered tools and roadway machines. It is true that a foreman must observe performance of men, tools and machines and know that each task is properly accomplished at the desired time. In this work foremen ordinarily have assistance from the track supervisor, roadway repairmen (mechanics), operators for special machines and the supervisor of roadway machines.

Maintenance employees formerly were exposed to the elements during work hours and while traveling to and from assignments. The present thinking is, for the most part, to provide sheltered on-and-off-track equipment and to forbid work during inclement weather.

Work formerly required of track foremen incident to passenger stations, water stations and miscellaneous roadway buildings, has, for the most part, disappeared.

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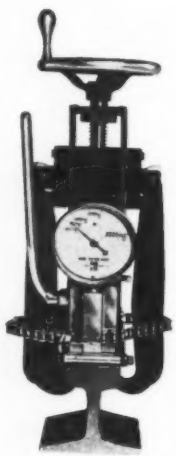

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To the Editor (Cont'd)

railway service, existing wage scales and working conditions, decrease in number of foremen and the stability provided by a minimum number of gangs should all contribute toward providing the required foremen. Promotion to higher positions carries with it a willingness to assume responsibility.

J. L. FERGUS
Acting Chief Engineer
Nashville, Chattanooga & St. Louis
Nashville, Tenn.

Asks If Foremen Are Really Hard to Get

TO THE EDITOR:

Read with interest, and no little disbelief, your "Dear Reader" editorial about the difficulties of finding qualified men to take the job of foreman in the maintenance-of-way forces. Evidently you have taken the word of the railroad personnel without hearing the other side. I say they don't want foremen as badly as you say they do, and I say it from experience and trial in trying to get a job. I know—I have tried! I have several letters saying that I'm too old. A large road turned me down because of a slight defect in vision in my left eye. Incidentally, I've had this defect all my life and it has in no way detracted from my value as a foreman. Honestly, I wasn't trying to get into the U. S. Marines—only back on the railroad.

I have had nearly thirty years' experience on the track, twenty-five as foreman. Apparently, they want experience, youth, and rugged constitution that would qualify one for the above mentioned Marines. Practically an impossibility. How, then, can I agree with your statement that they actually want foremen as badly as pictured. I can't.

I was furloughed from the Chicago & Illinois Midland a year ago due to a severe cutback in their maintenance forces. I am familiar with all track-laying and surfacing machinery; have had section, yard and extra-gang experience; and have supervised forces of up to sixty men.

A man of fifty-eight picks up several aches and pains in his fight against heat, cold and exposure that in no way detract from his ability, so it's hard for me to sympathize with your statement, or the railroads when they deplore the lack of adequate foremen.

I've also received several letters from different regional offices of the Railroad Retirement Board, but their cry is the same—too old.

So you see, your editorial is hard to swallow—or believe. I would take a proffered job in a minute, but have about given up hope. They'd like you to believe that foremen are hard to get. Probably my case is an isolated one, but I still can't believe that they're in dire need of experienced men. Can you blame me?

WILLIAM LINDSEY
Pekin, Ill.

Helps From Manufacturers

The following compilation of literature —including pamphlets and data sheets —is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

TRACTOR ATTACHMENTS. A new eight-page catalog has recently been made available describing how a wide range of attachments can increase tractor productivity on all types of construction and logging jobs. Shown in the catalog are accessories such as heavy-duty towing winches, worm-drive winches, "Hyspeed" winches, excavator cranes, etc. On-the-job photographs shown the equipment in use on various projects. (Write: *Hyster Company, Dept. RTS, 2902 Clackamas Street, Portland 8, Ore.*)

TORQUE-CONVERTER DRIVES. The advantages of torque-converter drive for lift trucks are described in new specification sheets recently published. This transmission, called "Hystamatic Drive" by the manufacturer is available as optional equipment on a variety of lift trucks. The sheets, printed in two colors, contain complete descriptions of the equipment, capacities, speeds, etc. (Write: *Hyster Company, Dept. RTS, 2902 N. E. Clackamas Street, Portland, Ore.*)

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For all its speed and roadability, this 4-wheel-drive 205 Cruiser has the tractive power to climb 30% grades. It's easy-handling, maneuverable on or off-pavement — turns in 27½-foot radius. Has power-steering, smooth torque-converter drive, big safe air hydraulic brakes. One engine supplies all power for work and travel — one man controls all operations. In addition to fast road speeds, you get a full range of low shuttle-speeds from 0 to 7 m.p.h., for lift-and-carry.

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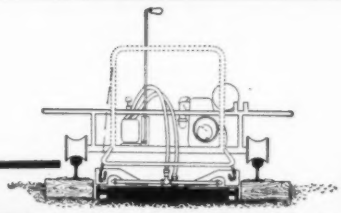

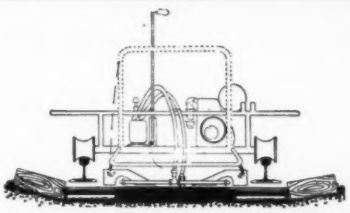

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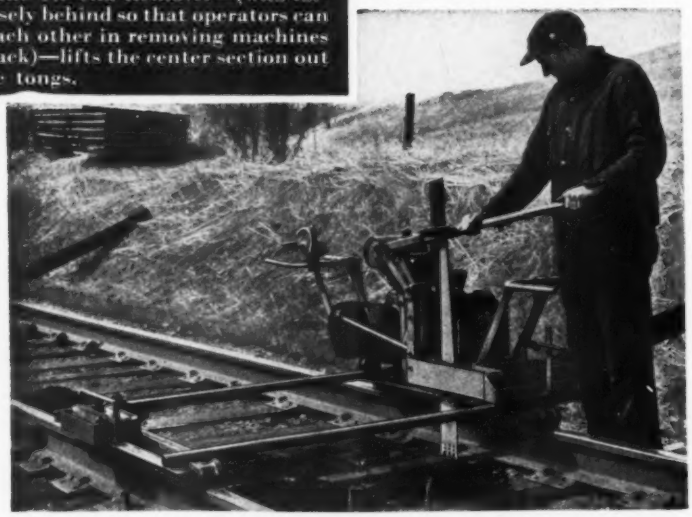

Use the WOOLERY TIE-END REMOVER in conjunction with the improved model NU WOOLERY TIE CUTTER! It's the *perfect team* for greater savings on tie renewals—and gives *smoother, safer track, too!*

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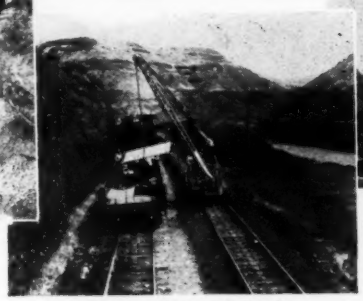

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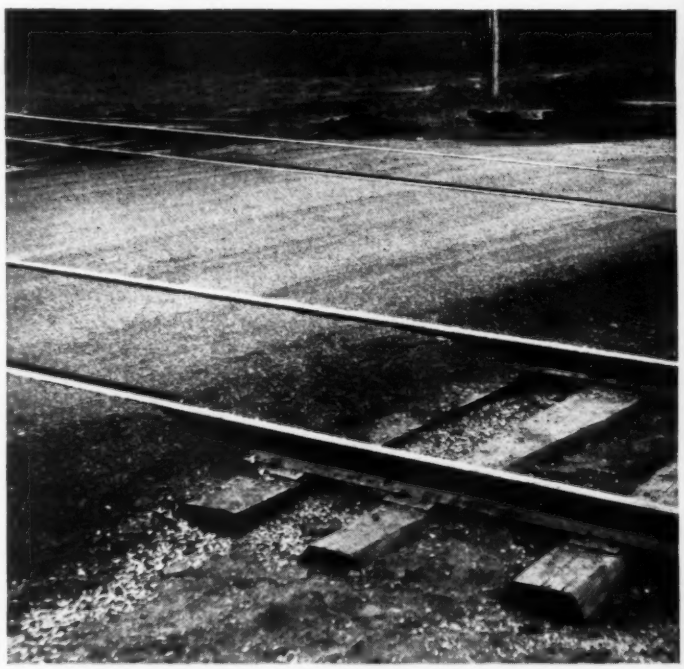

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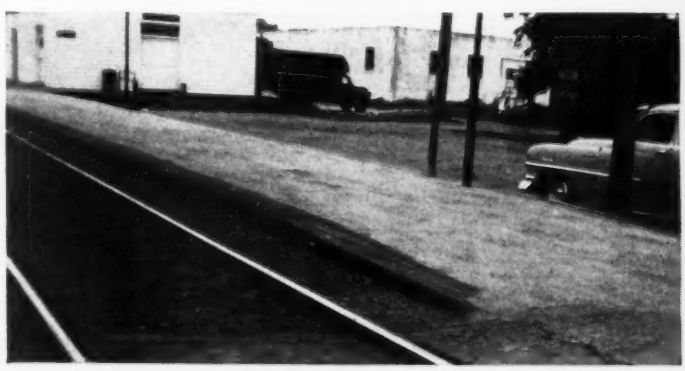

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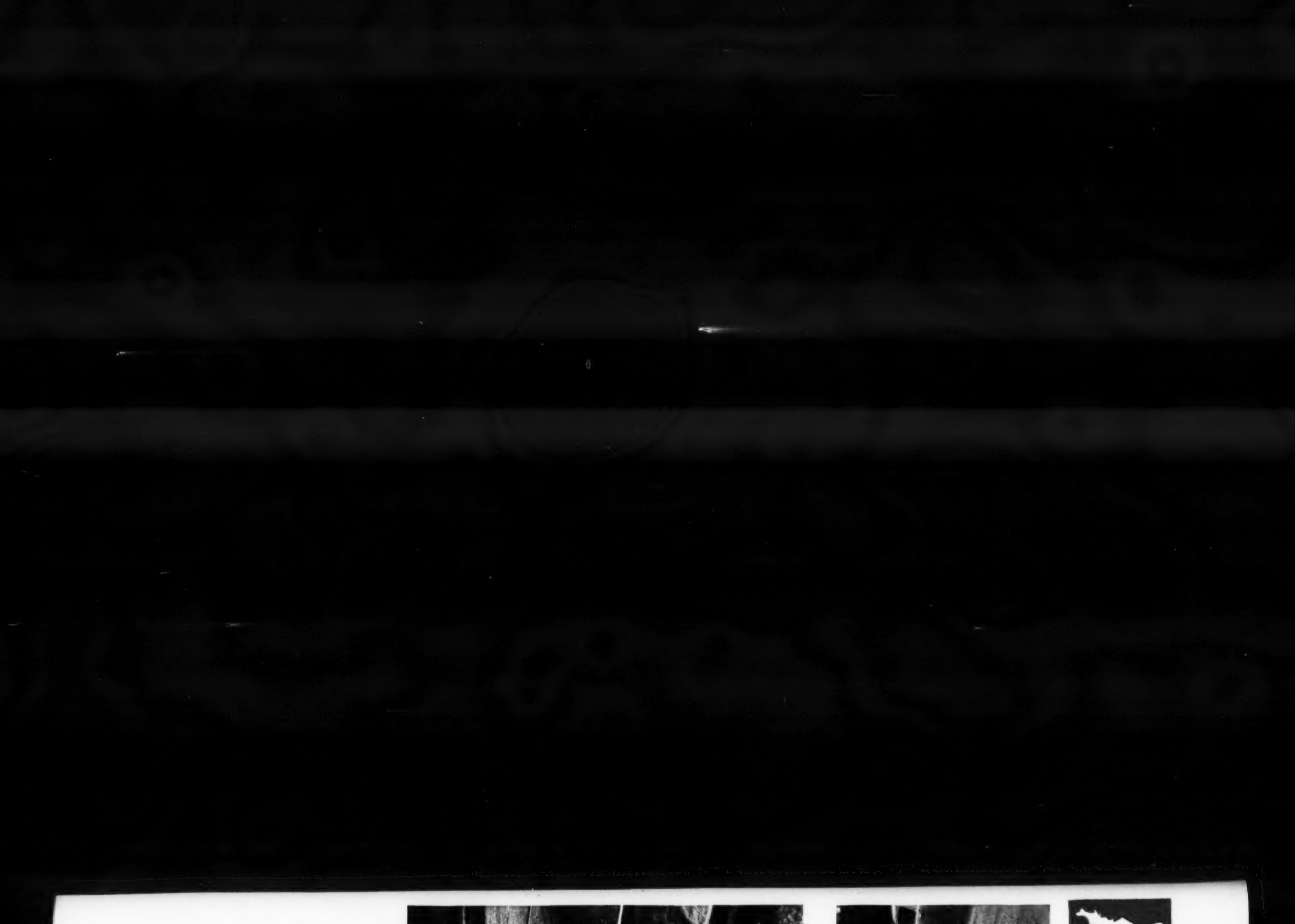
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